THE

Malayan Agricultural Journal.

Vol. XVI. DECEMBER, 1928. No. 12.

Correction.

It has been represented to this Department that the article published in the *Malayan Agricultural Journal*, Volume XVI, No. 3 under the title "Brief Notes on Agricultural Conditions on the East Coast of Malaya", does not give a correct impression of the State of Kelantan. The following emendations should, therefore, be read in conjunction with the original article:—

The coastal plain of Kelantan, comprising the districts of Kota Bahru and Pasir Puteh and the sub-districts of Bacho' and Pasir Mas, affords an exception to the general conditions prevailing elsewhere on the East coast. The area of this plain is approximately 1,000 square miles and the whole is densely populated and cultivated by an industrious agricultural population.

In this coastal plain very little land remains available for alienation, but in Southern Kelantan large areas are available for rubber, tea, oil-palm and other crops etc. with the opening up of the Railway the demand for land in Southern Kelantan is rapidly increasing.

Leptoglossus membranaceus F. a Pest of Cucurbitaceae.

H. T. Pagden.

Introduction.

Leptoglossus membranaceus, F., the Leaf-footed plant bug, belongs to the family Coreidae. It is of wide distribution and in all its stages causes great damage to Cucurbitaceous plants and cotton. The adult is recorded damaging citrus, and in Malaya it has been observed damaging ripe orange fruits.

The adult may be readily recognised by its black and yellow colouration, and the greatly expanded hind tibiae. So far it has only been recorded in numbers from the Government Experimental Plantation at Serdang and the Government Plantation at Kuala Kangsar. The material used in the preparation of this paper came from the former locality.

Distribution.

Leptoglossus membranaceus occurs in South and East Africa, Ceylon, Philippines, Queensland, Assam, Andaman Islands, Nicobar Islands, Burma, Tenasserim and Malaya.

Host Plants.

Nearly all Cucurbitaceous plants appear to be affected both by the young forms and by the adults. The plants on which it has so far been recorded in Malaya are *Cucurbita maxima*, *Luffa acutangula*, *Momordica charantia*, *Trichosanthes anguina* and *T. palmata*. On these plants both nymphs and adults have been obtained. On Citrus the adults have so far only been recorded from oranges at Kuala Kangsar, where the insect was found breeding on an adjacent area of mixed Cucurbitaceous plants.

In S. Africa[1] the insect is recorded damaging Citrus fruit during the dry season and in East Africa generally[27], it is recorded on *Peponium usambarense*. In Tanganyika Territory [15], [17] it does damage to cotton attacking the bolls in a

similar manner to *Dysdercus*, and all stages are recorded on Cotton in Uganda Protectorate [7, 8, 9, 16] where they attack the seeds and cause blister-like proliferations.

In Australia it is recorded from Queensland[18] on Cucumbers and causing great damage to Citrus in the adult stages, while in Ceylon it is found to breed on beans.

In the Philippines[19] it is recorded on Cucurbitaceae and is said to facilitate the oviposition of the fruit-fly *Dacus cucurbitae*, Coq. the fly depositing its eggs in the punctures made by the stylets of *L. membranaceus*.

It appears therefore that the chief host plants are Cucurbitaceae, Cotton and Beans while the adult insect may do considerable damage to Citrus fruit.

Description.

The genus is diagonised by Distant, Fauna of British India, as follows:—

> "Head long, produced in front of the antenniferous tubercles, "Eyes inserted at about one-third from the base; pronotum "broader than long, the lateral angles prominent or spinously "produced; posterior femora long, spinous, their apices reach- "ing or passing the apex of the abdomen; posterior tibiae "more or less dilated on each side, most prominently on the "outer margin; rostrum somewhat long, basal joint passing the "basal margin of the head".

Ovum.

	Length.	Width.
Maximum	1.6 mm	1.16 mm
Minimum	1.4 mm	1.12 mm

The operculum is sub-circular and 0.8 mm in average diameter. In shape the ova resemble a longitudinally bisected cylinder but the curve from base to apex is slightly sharper than for a true cylinder. There is a sub-circular operculum situated at the anterior end on the surface of the hemi-cylinder.

Colour.—A rather light greenish-gilt with metallic reflections, some ova are paler than others, being almost green.

Sculpture.—The surface is unsculptured except on the operculum where it is finely reticulate, visible only under a strong lens. A curved line of 7 to 8 raised pores runs across the operculum, the extremities of the curve being on a diameter and the line curving backwards towards the posterior margin of the operculum.

FIRST INSTAR.

This is taken as the first free living form and excludes the form prior to eclosion, an ecdysis taking place at eclosion as is usual. The cast skin of the pre-natal instar is visible in the empty egg and bears a well chitinised egg-bursting denticle. Length 2.5 to 3 mm.

Head.—The central lobe, clypeus or tylus, bears a single spine-like process about half way along its length and this bears two divergent setae at its apex. Two larger divergent processes are situated on the vertex between the eyes at a distance from the centre line equal to, or nearly equal to, half the distance from one eye to the centre-line of the head. Each of these processes bears a single seta at its apex. The whole surface of the head bears minute, symmetrically distributed setae. The epicranial sutures are well marked and form an ochreous Y which is infuscate on the margins.

Antennae of 4 segments, apical segment slightly clubbed. Very dark brown, almost black. The basal segment is shortest in all instars.

Length in mm of segments of antennae.

I	II	III	IV
0.48	1.02	0.68	1.02

but this varies within small limits.

The proboscis extends to the second ventral abdominal segment, in repose. Freshly emerged nymphs have the apex of the proboscis visible beyond the abdomen and the distance to which the proboscis reaches is measured in all cases after 24 hours.

In colour the head is brick red, infuscate on the tylus and along the margins of the epicranial sutures. Eyes darker red. Ocelli absent. Processes and setae black and shining, the processes rufescent at the base.

Thorax.—Black and shining with a pale ochreous central line which joins the median epicranial suture, Pleural region almost white and very weakly chitinised. The prothorax bears two divergent processes on either side of the central line, and each of these processes bears two divergent setae at its apex and one forward pointing seta half way up. The posterior angles of the pronotum are well developed though obtuse, and each bears a single seta. Approximately half way between this and the anterior angle of the pronotum is another lateral seta. The meso-thorax and meta-thorax are without processes, but are setose.

The legs are long and well-developed, black. Tarsi 2-segmented. Femora somewhat flattened, the intermediate and posterior femora mottled ochreous just distal to the middle of their length, their apices black. All the legs are well clothed with setae.

Abdomen.—The first segment bears two processes situated about half way between the mid-line and the lateral margins, slightly nearer the mid-line. Each bears a single seta at its apex. Laterally are two small lamellate processes near the posterior margin. These are black and shining. Tergum red, processes red at the base, through rufescent and fuscus to black; setae black. The second segment bears two very much smaller processes situated in a line with the inner margin of the base of those on segment I. The lateral margins bear much larger lamellate processes each bearing an apical seta as in segment I. Colour similar to segment I. The third segment is immaculate dorsally except for two microscopic setae. Laterally it has the same lamellate expansions. Between segents 4 and 5 is situated a large raised scent-gland black in colour and armed with two divergent processes each process bearing a single seta at its apex. Most of this gland is situated on segment 4. Between segments 5 and 6, mostly on 5 is a similar scent-gland. These three segments together with segment 7 are armed laterally with upward and backward curving lamellate processes. Segment 8 immaculate and fuscus, segments 9 and 10 bristly and black.

All the processes are black and shining, refescent at the base.

Second Instar.

Length: 4.5 to 6 mm.

Antennal segments in mm variable within small limits.

I	II	III	IV
0.8	1.75	1.25	1.3

Appearance very similar to the first instar. All the finger-like processes are better developed and have setae on their sides as well as apically. The processes on Segment 2 are better developed and are piceous in colour. The lateral lobes, juga, of the head are infuscate and the tylus bears a fuscus patch round the base of its process, and extending forwards from this. The antenniferous tubercles are infuscate apically and postero-basally, and the symmetrically arranged setae on the head are slightly larger. The proboscis, just after ecdysis, extends 0.75 mm beyond the apex of the abdomen, after 24 hours it extends to the 4th abdominal segment due to expansion of the abdomen after feeding. Labium of proboscis black the first segment ochreous mottled with black. Labrum ochreous, mottled with black.

The legs are black with a very faint fuscescent cloud just beyond the middle of the intermediate femora and a stronger ochreous cloud on the hind femora. The lower margin of the hind femora is interrupted with white. Hind tibiae flattened and slightly expanded.

THIRD INSTAR.

Length: 6.5 to 9 mm.

First segment of antennae distinctly expanded from base to apex, more so than previously, slightly laterally compressed. Colour of antennae piceous, apical segment fuscescent distally.

Antennal segments in mm. variable within small limits.

I	II	III	IV
1.0	2.25	1.6	1.75

Very similar in general appearance but process on tylus relatively shorter. Tylus and juga black on their apical half, as also are the antenniferous tubercles. Processes on vertex almost in a line with the front of the eyes, and all the processes are setose, there being no distinction between their apical setae and those on their sides, the apical setae being relatively much smaller than in previous instars. Proboscis reaching to apex of 4th ventral abdominal segment.

Thorax flattened and curved up at the sides, lobed, and tuberculate at the anterior angles of the pronotum.

The hind femora have the same ochreous cloud but that on the intermediate femora is less clear. The hind tibiae are slightly more expanded and flattened on their proximal third and have a central carina internally. The seven lateral lamellae of the abdomen are slightly wider, relative to their length. There is an infuscate ring round the first scent-gland and an infuscate patch behind the processes on the frons.

FOURTH INSTAR.

Length: 9.5 to 12 mm.

Antennal segments in mm. varying within small limits.

I	II	III	IV
1.5	2.75	2.0	2.3

Head.—Tylus and juga black. Antenniferous tubercles black with a piceous line running backwards past the eyes and joining the epicranial sutures as an almost black border, the sutures themselves ochreous. The general colour of the head is reddish-ochreous. The third segment of the antennae has a narrow ochreous annulus on its proximal third, the distal third of the apical segment is entirely ochreous. The process on the tylus still smaller than previously and the setae on the head are no longer symmetrically arranged.

Thorax.—Pronotum with its anterior angles tuberculate, its lateral margins denticulate, and its posterior angles upturned and spinose. Latero-posteriorly, on the upturned part of the pro-tergum,

is a triangular reddish-ochreous mark. The wing pads just overlap the second abdominal segment and almost completely hide the metanotum except for a small area centrally. Processes or the prothorax as before. Colour shining black, sparsely covered with minute waxy white scales. The upturned portions of the prothorax are reddish-ochreous beneath. The median thoracic suture is ochreous.

The hind femora have square white markings on their posterior margins. The hind tibate are bi—, or tri-dentate externally, more expanded externally than internally, and the inner expansion bears an ochreous spot.

Abdomen.—Segments 1 and 2 red. Segment 3 infuscate laterally and centrally, ochreous between the clouds. Segments 4, 5 and 6 infuscate over the whole disc except round the base of the scent glands, where there is a narrow ring of red. Segment 7 ochreous, infuscate laterally. Segments 8, 9 and 10 black, segment 10 almost telescoped into 9. Ventrally the abdomen is mottled ochreous and reddish fuscus, with a fuscus line laterally, just below the spiracles. The proboscis reaches to the apex of the fifth abdominal segment when in repose. The lateral lamellate processes remain black and shining, those on segment 1 are hidden by the wing pads.

Fifth Instar.

Length: 13 mm.

Antennal Segments in mm.	I	II	III	IV
	2.25	3.5	2.75	3.0

Head.—Juga black, extremity of tylus, and the process on tylus, black. From the spine on the tylus a reddish—ochreous mark covers the rest of the tylus and extends backwards, widening posteriorly until it becomes confluent, by a narrow isthmus, with two lateral, triangular marks of the same colour. These lateral marks are situated just internal to the antenniferous tubercles and their anterior angles extend along the inner margins of these tubercles, the rest of the tubercle black. Just posterior to this the central mark is constricted and continues to the median epicranial suture as a somewhat narrower median line. Epicranial sutures ochreous, the anterior ends of the lateral arms ending in an ochreous spot in front of which is a shallow depression. Along the inner margins of the eyes, and extending back to the pronotum, is a wide reddish-ochraceous line. Eyes dark reddish-brown.

Laterally a broad longitudinal fascia of reddish-ochreous extends from behind the eye to the pronotum, and below the eye is a large irregular mark of the same colour, also extending back to the pronotum. In front of this and extending almost to the labrum is a similarly coloured irregular patch.

Ventral surface of the head with a central ochreous line, darker along the margins, the lighter colour of the centre being due to translucense. This mark widens just before its posterior extremity.

Antennae.—basal segment somewhat laterally compressed, stout, black. Segment 2 with a broad central annulus of ochraceous-orange, segment 3 with a wider annulus, rather paler and situated nearer the proximal end. Segment 4 fusiform, with the distal two-thirds pale ochraceous-orange darker proximally.

Thorax.—Prothorax black. There is a distinct collar anteriorly. Posteriorly the pronotum is elevated. The anterior portion, including the collar, has a central depressed suture, which becomes a polished, raised line on the posterior, upward inclined, portion. Just posterior to the collar, on either side of the suture, are two divergent, setose processes, with their bases sometimes obscurely ferruginous inwardly. External to these are two semi-lunar polished depressions, their convex margins towards the lateral margins of the pronotum. Just posterior to the processes are two shallow pits Anterior angles, posterior to the collar, strongly tuberculate, the tubercles pointing upwards, forwards and outwards. The posterior raised portion has the lateral angles upturned and spinose and between the angles is a broad ochraceous fascia, interrupted in the middle for about one-third of its length, and not quite extending to the lateral margins. The whole lateral margin of the prothorax is denticulate, and the surface of the posterior portion is finely papilliform and setose; impunctate.

Scutellum: Irregularly and indefinitely striate, depressed laterally and with a central longitudinal carina.

Anterior wing-pads extending half-way across abdominal segment 4, their surface is papilliform and setose and both these and the scutellum are black and shining, and powdered with minute appressed white hairs.

Metanotum almost completely concealed. Black. The posterior wing-pads, except their inner margins, concealed by the anterior wing-pads, black. Both these have a few appressed white hairs.

Ventrally the whole thorax between the legs is reddish-ochreous. Above each leg is a spot of this colour, and above this again, another spot. Underside of the lateral posterior angles of the pro thorax reddish-ochreous.

Legs.—Black. Anterior femora widely and minutely denticulate beneath. Anterior tibiae obscurely mottled with reddish-ochreous posteriorly at their distal extremity.

Intermediate femora denticulate posteriorly and beneath, a small red spot just distal to the middle, ventrally. Tibiae black, apex usually with a line of dark reddish-ochreous posteriorly.

Posterior femora fairly strongly denticulate posteriorly, yellowish-ochre between the last four denticles. Tibiae much expanded for half their length from the base, more so externally. Bi—, or tri-dentate externally. On the internal expansion is an ochreous spot, and there is a similarly coloured, very much smaller spot, level with this, and situated on the external expansion, extreme apex of tibiae obscurely rufo-ochrescent.

Abdomen.—Segment 1. Only a small central portion is visible, bluish-black. There are two divergent black processes on the disc, situated one on either side of the centre line. Lateral margins covered by wing-pads but they bear a minute upturned lamellate process.

Segment 2. Similar to segment 1. The processes situated nearly on the posterior margin. Lamellae of lateral margins larger than on 1, black and shining. Segment 3 immaculate, bluish black. The lateral margins with a well developed upturned triangular lamella, convex above, black and shining. The extreme lateral posterior angle of the segment is reddish-ochreous.

Segment 4. Bluish-black. A similar but larger triangular lamella, convex above, black and shining, the margins round this reddish-ochreous.

Segment 5. Similar to 4. The scent-gland large and well developed, situated between 4 and 5, black and shining and armed with two vertical, finger-like processes which are setose.

Segment 6. Similar, but dull black, without the bluish tint except round the bases of the lateral lamelliform processes. The scent-gland between 5 and 6 similar to that between 4 and 5.

Segment 7. Similar to 6 but the surface immaculate except for appressed white hairs, and the ochreous lateral marks are obscure.

Segments 8, 9 and 10, black and shining.

All the segments with scattered, white, scale-like hairs, which are most numerous laterally.

Ventrally there is a central interrupted line of reddish-ochreous and on either side of this are three rows of reddish-ochreous spots.

Imago.

Black, occasionally dark chocolate brown but this is usually a post-mortem change. Markings variable in colour, ranging from almost chrome-yellow to reddish-ochraceous in the series of specimens examined.

Antennae black with a central ochraceous annulus on the second and third segments, that on the third wider. Fourth segment with the apical two-thirds ochreous above, the colour more extensive below.

Head with a central ochraceous line, sometimes incomplete or absent and slightly darker in living specimens, and a lateral line of the same colour behind each eye. Ventrally there is a broad lateral line of reddish-ochraceous.

Pronotum with a broad arcuate fascia, sometimes interrupted in the middle, crossing the anterior area; occasionally a central spot, which may be divided, in front of this and a central spot on the posterior margin of the prothorax yellow-ochre. The whole of the under-surface of the thorax and abdomen densely spotted with reddish-ochreous.

Scutellum sometimes with a spot at each angle, more often at the apex alone, yellowish-ochre. Occasionally all these spots are absent.

Forewings with the corium black and bearing a yellowish-ochreous spot, variable in size and sometimes wanting, on r—m. Sometimes a line of the same colour at the base of Sc + R. Membrane fuscus by the transmitted light, black with reflections, when in repose, in the living state.

Hindwings clear hyaline, the basal half with pale violet reflections.

Abdomen black with a lateral spot of yellow-ochre at the base of segments two to six, the spots increasing in size posteriorly. There are six visible ventral segments in the male and eight in the female. Traces of the larval odoriferous glands are visible between segments four and five, and five and six.

Legs black. Fore tibiae with a line of dark ochraceous, most obvious in the paler examples, though sometimes absent, on their internal and external surfaces. Hind femora dentate, those of the male relatively much more robust than those of the female. Hind tibiae expanded and flattened widest outwardly and with this margin sharply bi—, or tri-dentate, the inner margin sinuate, slightly denticulate in the male, smooth in the female. The inner expansion bears an irregular ochraceous spot and usually there is a similar spot of the same colour on the external expansion.

Head impunctate on vertex, punctured on tylus and juga, transversely strigose beneath. Two comma-shaped depressions are situated between the eyes and in front of each ocellus is a deep pit.

Prothorax with an impunctate transverse fascia anteriorly, bearing a deep fovoea in the middle of its posterior margin, and in front of this two raised maculae sometimes coloured ochreous. Posterior to this area is the transverse ochreous fascia which is coarsely punctured, somewhat remotely in the middle, more closely laterally and posteriorly, the surface between the punctures polished and shining. A triangular area of close puncturation is situated between the lateral extremities of this fascia and the impunctate area referred to above. Posterior to the ochreous fascia the pronotum is closely and coarsely punctured, the punctures coalescing and forming rugosities at the lateral angles. Lateral angles mucronate, usually pointing forwards and upwards, but occasionally pointing out laterally. In one male examined they were obtuse, almost rounded. Between the lateral angles, and running in a

backward curve, is a prominent tri-sinuate carina, the area posterior to this somewhat transversely rugulose. From the anterior fovoea a raised, dull, impunctate line runs back to the carina. Pleurae punctate, anteriorly the pro-pleurae have a polished, finely longitudinally strigose, ochreous spot, and the anterior area of both meso— and meta—pleurae is longitudinally striate. The odoriferous glands on the metasternum are surrounded by well defined divergent striae Sternites polished, faintly transversely striate. Scutellum transversely rugulose.

Abdomen indefinitely transversely striate on both surfaces.

Length 17.5 mm to 21 mm. Width across pronotal angles 6 mm. to 7.5 mm.

Antennal segments in mm:

		I	II	III	IV
Male.	Average	2.7	3.9	3.1	4.4
	Maximum	3.0	4.5	3.5	4.75
	Minimum	2.5	3.75	3.0	4.25
	Variation	0.5	0.75	0.5	0.5

		I	II	III	IV
Female.	Average	2.6	3.9	3.4	4.4
	Maximum	2.75	4.5	3.5	4.75
	Minimum	2.5	3.75	3.25	4.25
	Variation	0.25	0.75	0.25	0.5

Major differences between male and female.

	Male.	Female.
Visible abdominal segments.	6	8
Hind femora.	Wider.	Narrower.
Hind tibiae	Denticulate internally.	Smoothe internally.
Wings.	Cover abdomen laterally and overlap apex.	Lateral margins of abdomen visible and wings only just overlap apex or just reach it.

Life History.

The ova are deposited in strings of varying number. Occasionally ova were deposited singly in the laboratory, but in all cases these came from unfertilised females. The largest number obtained in a single string was 14 and these were deposited on a stem of *Trichosanthes anguina*. The position varies however; in the laboratory eggs have been deposited on the cloth used for covering the cages, on the stems of the food plant, and on the fruit, while in the field they have been found on the labels attached to the various food plants.

The incubation period varies from 4 to 8 days with an average of 6.73 days for 58 individuals.

There is, as usual, an ecdysis at the time of eclosion of the young nymph, which is bright red all over, but rapidly assumes its normal red and black colouration. The first instar nymphs are gregarious but readily scatter when disturbed. In the field they have been observed feeding on the shoots and flower buds of Cucurbitaceous plants and in the laboratory they appear to prefer the calyx of the just bursting flowers. The average period of the first instar is 3 days, the shortest time observed being 2 days and the longest 4 days. Increase in size during this period is not very marked, there being an increase in length of about 0.5 mm. only.

The second instar lasts for 4 to 13 days with an average period of 7.36 days for 39 individuals. On the third or fourth day after ecdysis the nymphs usually lose their gregarious habit, though third instar nymphs have been observed in the field in fairly close association. This appears to be unusual however, for they are more frequently found singly after the first instar. In appearance the second instar is very similar to the first except in size and minute differences which will be found in the description. There is an increase in length of about 1.5 mm during this instar.

The third instar differs not only in size but in having distinct tubercles at the anterior angles of the thorax and the hind tibiae are more expanded. The antennae also differ in colour being a very dark blackish-brown with the apical segment slightly paler, almost dark ochreous in some specimens. This instar lasts from 4 to 10 days with an average of 5.87 days for 29 individuals.

The fourth instar differs considerably in colour from the previous instars. There are two orange marks at the posterior lateral angles of the prothorax which are upturned and pointed, the anterior lateral angles, also, are strongly tuberculate. The abdomen differs in having a wide area on the disc strongly infuscate and the hind tibiae are markedly lamelate. The antennae have an obscure ochreous annulus on the third segment and the apical segment has the tip and a varying amount below this ochreous in colour. There is an increase in length of about 2.5 mm during this stage. The wing vestiges are first apparent in this instar.

After the fourth skin change the whole appearance of the insect alters, the ground colour becomes black with a few rather obscure markings and a well marked interrupted band

across the anterior area of the prothorax above. The head bears rather obscure ochreous marks and the antennae are distinctly ringed with ochreous on the second and third segments, the third segment being entirely ochreous from the middle to its apex. The hind tibiae are very markedly expanded, more so outwardly, where they are sharply bi—, or tri-dentate, and they bear one or two small ochreous spots.

The underside is strongly spotted with orange ochreous.

This instar lasts for from 8 to 10 days with an average length of 8.8 days.

The length of the insect at this time is about 13 mm.

The sixth instar is the adult. Nearly all the characters of the adult are foreshadowed in the fifth instar with the exception of the appearance of an extra pair of eyes or ocelli on the vertex and a reduction in the number of the abdominal segments. Previously too, there was a pair of stink glands on the abdomen, one between segments 4 and 5 and one between segments 5 and 6. These disappear, though their position may still be seen when the wings are opened, and another pair of stink glands appears on either side of the metasternum just in front of the posterior coxae. In colour the insect is black with a broad ochreous band across the prothorax and darker ochreous markings on the head. In the female the lateral margins of the abdomen are visible and are marked with yellow at the bases of the segments. In the male the segments are similarly marked but are covered by the wings. The hind tibiae are strongly expanded and flattened, with the outer margin bi—, or tri-dentate.

The undersurface is mottled ochreous and black.

Length 17 mm to 21 mm.

The total life-cycle, from the deposition of the egg to the death of the adults which these produced, varied in the laboratory from 35 to 94 days. Adults captured in the field and confined in cages in the laboratory lived for 66 days, and of those which were bred, the longest lived adult was 59 days old at the date of death. From egg to adult takes a little over a month so that a total length of life of 90 days is probably a fair average for those insects which do not meet with an accident.

The adults are extremely active, readily taking to the wing when disturbed, particularly in bright sunshine. Towards the evening they are more readily caught with a hand net and this is therefore the best time of day to put control measures into practice.

A table showing the life of ten individuals from egg to adult is given on page 400 and for comparison a table giving the periods of the various instars in the Uganda Protectorate is also reproduced. An examination of these two tables shows that the period from the hatching of the egg until the adult stage is reached is more than twice as long in Uganda than in this country. Again the incubation period in Uganda is about fourteen days whereas in Malaya the longest incubation period observed is eight days and the shortest five days.

That laboratory conditions do not affect the life-cycle to any marked extent in Malaya is indicated by the fact that adults will be found in the field at approximately the same time as they appear under artificial conditions, and usually, representatives of the various instars are obtainable in the field co-existent with those in the laboratory.

Meteorological conditions for the district in Uganda where observations were carried out on this insect, namely the Kadunguru Farm, are very much drier than in Selangor. The total rainfall for the year in question (April 1913 to March 1914) on the Kadunguru Farm, Bugondo was 51.96 ins. whereas the average annual rainfall for Selangor approaches 90 ins. As regards temperature the two places are somewhat similar though no exact data are to hand for the Kadunguru Farm but a mean maximum annual temperature for Uganda would appear to be about 78.6° F. with a mean minimum of 62.5° F. It is possible that rainfall alone would cause this difference in the rate of development.

	1*	2	3	4	5	6	7*	8	9	10*
Sex.	♂	♂	♂	♀	♀	♀	♂	♀	♂	♀
Date of oviposition	7.5.28	7.5.28	7.5.28	7.5.28	7.5.28	7.5.28	7.5.28	7.5.28	7.5.28	17.5.28
Date of eclosion of nymph	13.5.28	13.5.28	13.5.28	13.5.28	13.5.28	13.5.28	13.5.28	13.5.28	13.5.28	24.5.28
Incubation Period	6 days.	6 days	6 days	6 days	6 days	6 days	6 days	6 days	6 days	7 days
Date of 1st ecdysis	15.5.28	16.5.28	16.5.28	15.5.28	15.5.28	16..528	16.5.28	15.528	16.5.28	28.5.28
Period of 1st Instar	2 days	3 days	3 days	2 days	2 days	3 days	3 days	2 days	3 days	4 days
Date of 2nd ecdysis	23.5.28	25.5.28	24.5.28	23.5.28	26.5.28	24.5.28	25.5.28	24.5.28	24.5.28	1.6.28
Period of 2nd Instar	8 days	9 days	8 days	8 days	11 days	8 days	9 days	9 days	8 days	4 days
Date of 3rd ecdysis	28.5.28	30.5.28	29.5.28	28.5.28	30.5.28	29.5.28	30.5.28	29.5.28	30.5.28	6.6.28
Period of 3rd Instar	5 days	5 days.	5 days	5 days	4 days	5 days	5 days	5 days	6 days	5 days
Date of 4th ecdysis	2.6.28	5.6.28	4.6.28	1.6.28	4.6.28	3.6.28	5.6.28	4.6.28	4.6.28	11.6.28
Period of 4th Instar	5 days	6 days	6 days	4 days	5 days	5 days	6 days	6 days	5 days	5 days
Date of becoming adult	10.6.28	13.6.28	12.6.28	9.6.28	12.6.28	11.6.28	12.6.28	13.6.28	12.6.28	20.6.28
Period of 5th Instar	8 days	8 days	8 days	8 days	8 days	8 days	7 days	9 days	8 days	9 days
Date of death	11.6.28	22.6.28	19.6.28	13.6.28	30.7.28	9.8.28	12.6.28	9.8.28	20.6.28	21.6.28
Total period of life	killed 11.VI.28	46 days	43 days	37 days	84 days	94 days	36 days	94 days	44 days	35 days

*These insects had trouble in the their lsat ecdysis and all failed to free some part of their bodies.

The examples in this table are taken from two separate breeding experiments and only those which attained the adult stage are shown. The mortality among the nymphs being very high in the laboratory.

Number of Moult.	Duration of Moult.	Maximum number of days.	Minimum number of days.	Average number of days.
First -	Dec. 17 - 27	10	10	10
Second -	Dec. 19 - 30			
	Dec. 19 - 29	11	9	10
	Dec. 19 - 28			
Third -	Dec. 24 - Jan. 5	11	10	10.5
	Dec. 24 - Jan. 4			
Fourth -	Dec. 25 - Jan. 2	12	8	10
	Dec. 25 - Jan. 6			
Fifth -	Dec. 23 - Jan. 10			
	Dec. 23 - Jan. 13	21	18	19.5
	Dec. 23 - Jan. 11			

Control.

So far *L. membranaceus*, F. has only been recorded from Cucurbitaceae and oranges in Malaya, and in the latter case only the adults have been observed doing damage. It is obvious, therefore, that where this insect occurs, it is inadvisable to grow Cucurbitaceous plants in the neighbourhood of Citrus.

For control on Cucurbitaceae the adults may readily be captured in a hand net and destroyed, while a kerosene emulsion spray will be found effective against the younger stages provided that they are actually wetted by the spray. Since, however, the nymphs readily drop off the plant when disturbed the method recommended for its control on beans in Ceylon[2] may be easily carried out where the plants are grown on a framework or trained up sticks. This is to dislodge the

nymphs by jarring the plants and to catch them in pans containing water on which a layer of kerosene has been poured. This method has the advantage of giving an immediate known result, whereas with spraying the number of insects killed is difficult to determine.

Other Species of Economic Importance.

Other species of *Leptoglossus* have been recorded damaging various plants of economic importance in various parts of the world. *L. balteatus* [4], [12] occurs on cotton, tomatoes and leguminous plants in St. Vincent and has been shown to carry Cotton Boll Disease. *L. gonagra* [4], [12] also occurs in St. Vincent damaging tomatoes and Legiminosae but has not been recorded on cotton. *L. phyllopus*, L has many host plants being recorded from Cotton in U.S.A. [13], on Citrus in Florida [22],[23], [24] and Alabama [5], on potatoes in Florida [25], tomatoes in Mexico [3] and Florida [21], tobacco in Florida [26] in which case sunflowers have been used as a successful trap-crop, and doing damage to Pecan kernel in Arizona [6]. *L. Zonatus*, Dall, also occurs on cotton in U.S.A. [13] though its normal host plant is pomegranate, and has been recorded on Sorghum in Kansas [11]. While *L. oppositus* [13] is another pest of cotton in the South-West of America. In the Bismark Archipelago [20] *L. australis* is recorded damaging cotton. A species of *Leptoglossus* is recorded as a minor pest of Citrus in the Gold Coast [14].

The species *L. balteatus*, *L. gonagra*, *L. oppositus*, and *L. australis* are cited without their authors and in the absence of adequate literature it is impossible to say if they are synonyms of other species or not. It may be, therefore, that the writer has recorded a species more than once under different names, but it was considered advisable to refer to all papers examined either as abstracts or in full.

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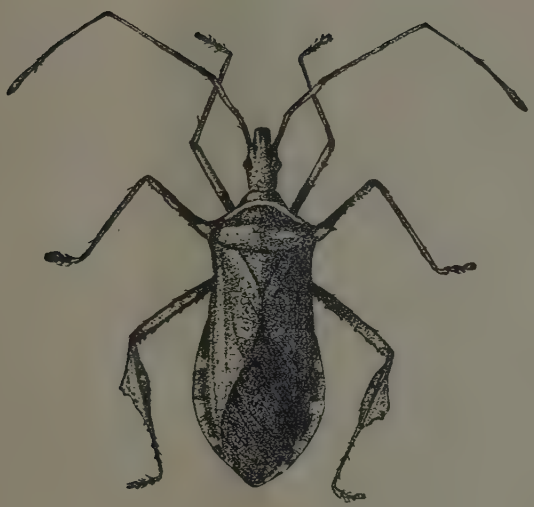
PLATE I.

1. Ova x 2.
2. First instar nymph x 8.
3. Second instar nymph x 5.
4. Third instar nymph x 4.5.
5. Fourth instar nymph x 3.
6. Fifth instar nymph x 3.

1
2
3
4
5
6

PLATE II.

1. Imago, female, x 3.
2. Ventral surface of abdomen of male x 8 approx.
3. Ventral surface of abdomen of female x 8 approx.
4. Right hind leg of male x 2.
5. Right hind leg of female x 2.



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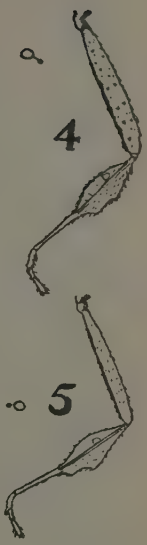

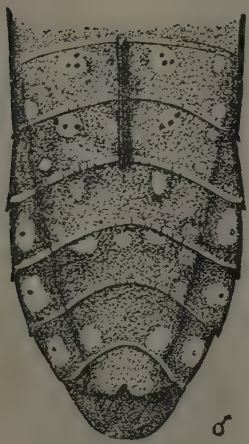

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3

A List of Insects with their Parasites and Predators in Malaya.

G. H. Corbett and N. C. E. Miller.

The earliest record of the utilisation of parasites or predators in the control of insects attacking plants of economic importance is possibly that mentioned in Kirby and Spence's Entomology (1816) when the employment of Coccinellidae, or, as they are popularly called, "Ladybirds", to destroy Aphids, was advocated. This method was adopted with considerable success, and since then, the breeding and liberation of parasites and predators have been carried on, in some cases with marked success in many countries. Among these, probably the most note-worthy was the introduction into California from Australia, in the early days of horticulture, of *Novius cardinalis* Muls. a coccinellid beetle, to combat the ravages of the scale insect, *Icerya purchasi* Mask., on lemon and orange trees. Many thousands of adults of this beetle were bred out and distributed among the owners of groves with the result that in a comparatively short time this insect was almost completely wiped out, and was no longer considered a factor in the cultivation of fruits of the citrus family.

Equally successful was the introduction of the same beetle into Portugal in 1897 (1).

In 1816, C. V. Riley, the State Entomologist of Missouri, in his Fourth Report of the Insects of Missouri, advocated the liberation of parasites, and destroying the host by means of confining larvae or pupae in gauze covered cages, the gauze having a sufficiently wide mesh to allow parasites to escape, but too narrow to permit the exit of the host. (2). This method, undoubtedly could be utilised with success and with a minimum of expense for several insects in Malaya, and particularly so for the control of *Setora nitens* Walk., a "nettle" caterpillar which is an important pest of coconut palms up to about 5 years of age. The present method of collecting the larvae and pupae would undoubtedly prove to be far more effective, if instead of destroying them, they were enclosed in such cages.

Since the time when biological control was first suggested, the work of breeding and distributing parasites has assumed considerable proportions and laboratories have been established in many countries.

In this connection it is fitting to refer to the work of parasite breeding and distribution which is at present being carried out at the laboratory of the Imperial Bureau of Entomology, London. (3). Among the exports from that laboratory during 1927, the following may be mentioned—Blow fly puparia containing parasites to the Falkland Islands, New Zealand and Australia. Earwig parasites to Canada; parasites of *Sirex*, a Hymenopteron whose larvae, by boring, do much damage to timber trees, to New Zealand; *Aphelinus mali* to Kenya and Poland, and *Hydrotaea dentipes* to Australia.

Of particular interest was the introduction from Malaya to Fiji of the Tachinid fly, *Ptychomyia remota* Ald. (4). Between the years 1920 and 1923 attempts had been made without success in Fiji, to control the moth *Levuana iridescens* Beth. Baker, a pest of coconut palms, and finally, requests were made to the Department of Agriculture, Straits Settlements and Federated Malay States, for help and information regarding the parasites of *Artona catoxantha* Hamps., an allied species which is also a coconut pest in Malaya. In 1924, following an intensive study of this parasite, this Division was in a position to report that *Ptychomyia remota* Ald. would breed on larvae other than those of *Artona catoxantha* Hamps., inferring at the same time that they would attack the nearly related *Levuana*.

The transportation to Fiji was no simple matter owing to the short life-history of the parasite, and to the failure of the larvae of the host to thrive in small cages. It was therefore decided to construct special cages capable of containing small growing palms.

After some difficulty the Government of Fiji arranged for the "Clan Mackay" to call at Singapore on July 4, 1925. The "Clan Mackay" was delayed, owing to having to go to the assistance of another ship and it appeared as if the first attempt were going to fail. Arrangements were finally made however for the "Clan Matheson" to sail direct from Java to Suva, Fiji, and for the cargo of parasitised material to be transhipped from the Clan Mackay at Sourabaya.

On arrival at Suva, three hundred adult *Ptychomyia remota* were found to be living and they at once oviposited on larvae of *Levuana*. Some months later, it was reported that the introduced parasites were thriving and beginning to disperse, and that the number of larvae found to be attacked was commonly 75%, and occasionally 90%.

It should not be thought, however, that the introduction of parasites from other countries, or the breeding and releasing of indigenous parasites will give immediate results in the control of a pest. In the case of an introduced parasite, a considerable period must necessarily elapse before it can thoroughly establish itself. Success in one particular case may give rise to undue optimism on the part of the general public, but, it should be emphasised that our knowledge of the ecology of both hosts and parasites is at present meagre, therefore, the adoption of biological control to the exclusion of other methods is not recommended, except in specific cases in which by experiment, it has proved to be entirely effective.

The following list of parasites and their hosts, together with the food-plants of the hosts has been compiled from records obtained in the entomological laboratory since 1920 and has been prepared essentially to acquaint entomologists, working in the Pacific area, of the parasitic and predaceous fauna of Malaya. The list is unfortunately incomplete in respect of the specific determinations of a great number of the hosts and the parasites. On numerous occasions all specimens have been parasitised, and in some cases, also, only a single individual of a species has been bred out and has not been identified.

The number of specialists working on the parasitic groups of insects is limited, with the result that these workers are inundated with more material than they can conveniently manage. We are very much indebted to Dr. Guy A. K. Marshall, Director of the Imperial Bureau of Entomology, to Dr. J. M. Aldrich of the United States National Museum, to the late Professor M. Bezzi of Turin, to Mr. J. Malloch of the United States, Department of Agriculture, and to Mr. H. W. Wilkinson of the Imperial Bureau for their kindness in identifying most of the parasites contained in the list.

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A List of Insects with their Parasites and Predators in Malaya.

Food-plant.	Insect.	Enemy.
Dilleniaceae.		
Dillenia meliosmaefolia, Hook. ...	1606. *Margaronia glauculalis* Guen.	1650. *Apanteles stantoni* Ashm.
	2249. *Attacus atlas* L. (ova) ...	*2356. Chalcidoid.
Anonaceae.		
Anona muricata L. (Soursop). ...	1957. *Papilio agamemnon* L. ...	1958. *Apanteles agamemnonis* Wilk.
	3553. ,, (ova).	3610. Chalcidoid.
	,, ,,	716. ,,
	814. *Attacus atlas* L. (ova). ...	*852. ,,
	2162. Lymantriid. ...	2202. ,,
Anona squamosa L. (Custard apple).	2894. Coccid. ...	*2944. *Eublemma rubra* Hamps.
Canangium odoratum, Baill. ... (Ylang-Ylang).	2235. *Attacus atlas* L. (ova). ...	*2244. Chalcidoid.
	3270. *Aleurocanthus* sp. ...	3295. *Pullus albopilis* Mots.
Cruciferae.		
Brassica oleracea L. (Cabbage). ...	1399. *Psara submarginalis* Swinh.	*2810. *Cosmolestes picticeps* Sta.
	2261. *Spilosoma strigatula* Walk....	2311. Tachinid.
	2264. *Phytometra intermixta* War.	2365. Hymenopteron.

Food-plant.		Insect.		Enemy.	
Brassica oleracea L. var. *botrytis* Mill. (Cauliflower).	2458.	*Spilosoma strigatula* Walk. ...	2470.	Dipteron.	
Bixaceae.					
Hydnocarpus anthelminthicus Pierre. (Lukrabo).	2375.	*Altha albiguttatus* Sn. ...	2435.	,,	
	2375.	,, ...	2809.	Chalcidoid.	
Guttiferae.					
Garcinia Mangostana L. (Mangosteen). ...	1437.	*Aetholix flavibasalis* Guen. ...	1461.	Hymenopteron.	
Mesua ferrea L. (Ceylon Iron-wood).	4927.	Aphid. ...	4929.	Braconid.	
Malvaceae.					
Durio zibethinus L. (Durian). ...	937.	Sphingid. ...	*603.	*Tricholyga sorbillans* Wied.	
	2778.	*Sylepta bipunctalis* Warr. ...	2801.	Tachinid.	
Eriodendron anfractuosum D.C. (Kapok). ...	1661.	*Mahasena corbetti* Tams. ...	1667.	Chalcidoid.	
	3747.	Lymantriid. ...	3869.	Tachinid.	
Gossypium spp. (Cotton). ...	1692.	*Sylepta derogata* F. ...	*1759.	Braconid (hyp. Hym. 1829).	
	3320.	,, ...	3325.	Chalcidoid.	
	3320.	,, ...	3339.	Braconid.	
Hibiscus esculentus L. (Ochra). ...	1869.	,, ...	1908.	,,	
Hibiscus rosa-sinensis L. (Shoe flower).		*Prodenia litura* F. ...	78.	*Chelonus* sp.	

Food-plant.		Insect.		Enemy.
Hibiscus sp.		*Sylepta derogata* F.	408.	*Xanthopimpla punctata* F.
			*751, 755, 759, 769,	
		,,	1319.	Braconid.
Geraniaceae.				
Tropaeolum majus L. (Nasturtium).	2271.	*Agromyza pusilla* Mg.	2301.	Hymenopteron.
Rutaceae.				
Citrus aurantium L. (Orange).	1737.	*Attacus atlas* L. (ova).	*1802.	Chalcidoid.
	5121.	*Aphis tavaresi* del Guer.	5122.	*Coccinella transversalis* F.
	2521.	,,	2522.	Coccinellid.
	3826.	*Aleurocanthus* sp.	3827.	*Scymnus* sp. ?
	4896.	*Phyllocnistis citrella* Staint.	4973.	Hymenopteron.
	4846.	Psychid.	4887.	,,
Citrus decumana Murr. (Pomelo).	2130.	*Attacus atlas* L. (ova).	*2160.	Chalcidoid.
Citrus medica L. var. *acida* Hook. (Lime).		,,	*1106.	,,
	1386.	*Papilio polytes* L.	1392.	Hymenopteron.
	2246.	*Coccus viridis* Green.	2309.	,,
	2411.	*Psorosticha zizyphi* Staint.	2412.	,,
	2411.	,,	2511.	Chalcidoid.
	3575.	*Aleurocanthus* sp.	3608.	,,
	5148.	Aphid.	5279.	Syrphid.
	5148.	,,	5149.	,,
	5148.	,,	5160.	*Asarkina aegrota* F.
Citrus limonum (Lemon).	2554.	*Crocidomera robusta* Moore.	2589.	Hymenopteron.
	4655.	,,	4690.	Tachnid.

Food-plant.		Insect.		Enemy.
Citrus (*sinensis*) *aurantium* L. (Orange).	3433.	*Phenacoccus spinosus* Rob.	...	*3435. *Eublemma rubra* Hamps.
	4369.	*Papilio polytes* L.	...	4370. Chalcidoid.
Citrus sp. ...		,,	...	*231. *Chalcis marginata* Cam.
	756.	*Orpheides malayanus* Wall.		1225. Chalcidoid.
	2010.	*Pseudococcus* sp.	...	2024. *Spalgis epius* West.
	2317.	*Aphis tavaresi* del Guer.	...	2318. *Chrysopa* sp.
		,,	...	2319. *Coelophora* sp.
Evodia latifolia D.C. ...	2965.	*Saissetia coffeae* Walk.	...	2975. Chalcidoid.
Simarubeae.				
Brucea sumatrana Roxb. (Macassar kernel).	2321.	*Attacus atlas* L. (ova).	...	*2392. ,,
Burseraceae.				
Canarium commune L. (Java almond).	768.	Psychid.	...	603. *Tricholyga* sp.
	2130.	*Attacus atlas* L. (ova).	...	*2188. Chalcidoid.
	4788.	*Attacus cynthia* Dr.	...	4807. Ichneumonid.
	4827.	,,	...	4972. Tachinid.
Anacardiaceae.				
Mangifera indica L. (Mango). ...	3746.	*Porthetria beatrix* Stoll.	...	3755. Chalcidoid.
	3746.	,,	...	3760. Tachinid.
	3746.	,,	...	4503, 4. Chalcidoid.
	2877.	*Rhytidodera simulans* White.		2929. *Dastarcus porosus* Walk.
Mangifera foetida Lour. ...	3178.	Psychid.	...	3200, 1. Chalcidoid.

Food-plant.	Insect.	Enemy.
Leguminosae.		
Arachis hypogaea L. (Groundnut).	2379. *Creatonotus transiens* Walk.	2381. *Apanteles creatonoti* Vier.
Cajanus indicus. Spreng.	2481. *Lamprosema diemenalis* Guen.	2482. *Apanteles inquisitor* Wilk.
Centrosema plumieri Benth. ...	3083. *Orgyia turbata* Bl. ...	3087. Chalcidoid.
Derris elliptica Benth. ...	1546. *Heliothis flavigera* Hamps. ...	*2814. *Cosmolestes picticeps* Stal.
Derris sp.	1843. Lymantriid. ...	1889. Hymenopteron.
	2581. *Sinoxylon anale* Lesne. ...	2582. ,,
Pithecolobium saman Benth. ... (Rain tree).	3132. *Puto* sp. ...	3161, 2. *Pullus elegans* Sic.
Pithecolobium sp. ...	1846. Geometrid.	1887. Hymenopteron.
Erythrina indica Lam.	713. *Acherontia lachesis* F. ...	*986. *Sturmia atropivora* R.D.
(Thorny dadap).	2195. ,, ...	2224. Tachinid.
	1257. *Agathodes ostentalis* Hüb. ...	1272. *Phanerotoma* sp.
	3265. *Porthesia scintillans*. Walk.	3300. Braconid.
	3265. ,, ...	3313. ,,
Glycine hispida Max.	975. *Lamprosema diemenalis*	979. ,,
(Soy bean).	Guen.	
	1369. *Agromyza sojae* Zehnt. ...	1373, 1379. Chalcidoid.
	1404. Pyralid. ...	1414. Hymenopteron.
	3613. *Lamprosema diemenalis*. Guen.	3628. Braconid.
Hymenaea courbaril L. (Locust tree).	1997. Lymantriid.	2039, 2009. Dipteron.
Gliricidia maculata H.B.K. ...	2667. *Ceroplastodes virescens* Green.	2671. *Chilocorus politus* Muls.

Food-plant.	Insect.	Enemy.
Phaseolus vulgaris Linn. (French bean).	875. *Lamprosema indicata* F. ...	913. Braconid.
	876. *Tirathaba rufivena* Walk. ...	911. ,,
	2770. *Agromyza* sp.nr. *sojae*, Zehnt.	2771. Hymenopteron.
Poinciana regia Boj. (Flame tree).	2665. Psychid. ...	2728. Ichneumonid.
Tephrosia hookeriana var *amoena* ...	3158. ,, ...	3172. Tachinid.
Vigna catjang Walp. (Cowpea). ...	4948. *Etiella zinckenella* Treit.	4949,50. Hymenopteron.
	945. Aphid. ...	947. Syrphid.
	1490. *Aphis rumicis* L. ...	1491,1516. ,,
	3612. Aphid. ...	3629. *Paragus serratus*. F.
	Prodenia litura F. ...	78. *Chelonus* sp.
Myrtaceae.		
Eugenia aquea Burm. ...	*Orgyia cerigoides* Walk. ...	157. *Carcelia modicella* V.d.W.
Psidium guajava L. ...	981. *Attacus atlas* L. (ova). ...	1044. Chalcidoid.
	2902. Psychid. ...	2941. Ichneumonid.
	3771. *Attacus cynthia* Dr. ...	3800. Tachinid.
Rubiaceae.		
Coffea liberica Hiern. (Coffee). ...	1271. *Coccus viridis* Green. ...	1299. Hymenopteron.
	3086. *Brachyacma palpigera* Wals.	3147. Braconid.
	5646. *Cephonodes hylas* L. (ova). ...	5715. Chalcid.
Coffea arabica L. ...	4386. *Coccus viridis* Green. ...	4387. *Chilocorus politus* Muls.
Uncaria gambir Roxb. (Gambier).	2163. *Attacus atlas* L. ...	2169. Chalcidoid.
	1816. Sphingid. ...	1945. Tachinid.

Food-plant.		Insect.		Enemy.
Uncaria gambir Roxb.	...	2825. Limacodid.	...	2863. Hymenopteron.
		3720. *Margaronia coeruleiceps* Hamps.	...	3732. Ichneumonid.
Compositae.				
Chrysanthemum.	...	3548. Aphid.	...	3549. *Paragus serratus* F.
Sapotaceae.				
Palaquium gutta Burck. (Gutta-percha).		3369. *Sylepta balteata* F.	...	3369,4324. *Mermis* sp. (Nematode worm).
Apocynaceae.				
Funtumia elastica Stapf. (African rubber).		1924. *Argyroploce codonectis* Meyr.		1936. *Apanteles stantoni* Ashm.
		1679. *Caprinia conchylalis* Guen.		1708. Braconid.
Convolvulaceae.				
Ipomaea Batatas Lam. (Sweet potato).	...	3189. *Physomerus grossipes* F. (ova).	...	3190. Chalcidoid.
Ipomaea purpurea Roth. (Morning glory).		3058. *Aspidomorpha miliaris* F. (ova).	...	3065. ,,
Solanaceae.				
Solanum melongena. (Egg-plant).	...	2383. *Leucinodes orbonalis* Guen.	...	2384. *Pachyopthalmus* sp.
		296. *Psara bipunctalis* F.	...	319. *Sturmia parachrysops* Bezzi.

Food-plant.		Insect.		Enemy.	
Solanum melongena (Egg-plant).	2391.	Geometrid.	2400.	*Apanteles corbetti* Wilk.	
	118.	*Psara bipunctalis* F.	232.	*Microgaster psarae* Wilk.	
	2094.	Lymantriid.	2107.	Tachinid.	
	2657.	*Acherontia styx* Westw.	2680.	,,	
	44.	,,	3455.	Chalcidoid.	
	3439.	*Leucinodes orbonalis Guen.*	3472.	Ichneumonid.	
	3748.	*Epilachna indica* Muls.	3799.	Chalcidoid.	
	4863.	*Psara bipunctalis* F.	4876A.	Braconid.	
	3444.	*Acherontia styx* Westw.	3455.	Chalcidoid.	
Bignoniaceae.					
Jacaranda mimosaefolia R.Br.	1118.	Psychid.	1157.	,,	
Pedalineae.					
Sesamum indicum D.C.	899.	*Acherontia styx* Westw.	*946.	*Sturmia atropivora* R.D.	
	1297.	*Antigastra catalaunalis* Dup.	1330.	Chalcidoid.	
Labiatae.					
Coleus parviflorus Benth.	1343.	*Syngamia abruptalis* Walk.	1382.	*Lissonota* sp.	
Coleus sp.	1815.	*Pycnarmon cribrata* F.	1849.	Hymenopteron.	
			2432.	,,	
Pogostemon cablin Benth.	3983.	*Psara stultalis* Walk.	3984.	Chalcidoid.	
Cinnamomum camphora Nees & Eberm. (Camphor).	2197.	*Attacus atlas* L. (ova).	2284.	,,	

Food-plant.	Insect.		Enemy.
Cinnamomum zeylanicum Bl. (Cinnamon).	1260. *Dasychira mendosa* Hüb.	...	*603. *Tricholyga sorbillans* Wied.
	2322. *Attacus atlas* L. (ova).	...	2382. Chalcidoid.
	1895. *Dasychira mendosa* Hub.	...	1952. Tachinid.
	3067. ,,	...	3080. ,,
	2324. Limacodid.	...	2358, 2367. Braconid.
	2475. ,,	...	2486. Hymenopteron.
Euphorbiaceae.			
Aleurites montana Wils. (China wood oil).	2103. Lymantriid.	...	2102. *Apanteles lamprosemae* Wilk.
	1103. ,,	...	1150. *Carcelia modicella* V.d.W.
	1992. ,,	...	2108. Tachinid.
	2062. ,,	...	2102. ,,
	3323. ,,	...	3336. ,,
	3692. Geometrid.	...	3695. Braconid.
	2227. *Attacus atlas*. L. (ova).	...	*2290. Chalcidoid.
	3659. *Orgyia mendosa* Hüb.	...	3684. Tachinid.
	,,	...	3686. *Apanteles* sp.
	3744. ,,	...	3761. Tachinid.
	2963. ,,	...	3046. Braconid.
	3324. *Mahasena corbetti* Tams.	...	1188. Chalcidoid.
	3324. ,,	...	3334. ,,
	3358. *Aspidiotus palmae* Morg. and *Lecanium* sp.	...	3350. *Eublemma* sp.

Food-plant.	Insect.		Enemy.
Aleurites triloba Forst. (Candle nut).	*Chalcocelis fumifera* Swinh.		*119B. *Exorista cervinoides* V.d.W. var. *rufella* Bezzi.
	2208. *Xylothrips flavipes* Illig.		2210. 1. *Cylidrus wallacei* Thoms.
Croton tiglium L. (Croton).	1210. Nymphalid.	...	*603. *Tricholyga sorbillans* Wied.
	1212. *Saissetia nigra* Niet.	...	*1213. *Eublemma rubra* Hamps.
Hevea brasiliensis Muell. (Para rubber).	*Hemithea costipunctata* Moore.	...	394. *Exorista laeviventris* V.d.W.
	,,	...	397-400. *Apanteles hemitheae* Wilk.
	2433. *Homodes bracteigutta* Hamps.	...	2434. Hymenopteron.
	3198. *Ferrisia virgata* Ckll.	...	3202. Chalcidoid.
	,,	...	3217,8. *Pullus albopilis* Mots.
	3795. *Orgyia turbata* Bl.	...	3825. Tachinid.
Manihot utilissima Pohl. (Tapioca).	2959. *Tiracola plagiata* Walk.	...	2982. ,,
Ricinus communis L. (Castor).	,,	...	153. *Blepharipoda ophirica* Walk.
	,,	...	*393. *Sturmia inconspicua* Mg.
	Prodenia litura Walk.	...	70. *Podomyia setosa* Dol.
	Orgyia postica Walk.	...	*603. *Tricholyga sorbillans* Wied.
	1378. *Nygmia scintillans* Walk.	...	1445. *Henicospilus flavocephalus* Kirby.
	2371. *Achaea janata* L.	...	*2381. *Apanteles creatonoti* Wilk.

Food-plant.	Insect.	Enemy.
Sapium sebiferum Roxb. (Chinese tallow).	*Attacus atlas* L. (ova). ...	Chalcidoid.
Ficus elastica Roxb. (India rubber).	470. *Caprinia conchylalis*. Guen.	488. *Brachymeria euploeae* Westw.
Endospermum malaccense	3184. *Micronia astheniata* Guen. ...	3221. Tachinid.
Ficus sp. ...	2157. *Asota caricae* Boisd. ...	2178. Tachinid (hyp. Chalcidoid 2275).
Casuarineae.		
Casuarina equisetifolia Forst. ...	3175. *Streblote lipara* Tams. ...	3181. ,,
		3203. ,,
Casuarina sp. ...	3134. *Clania variegata* Snell. ...	3135,6,7. ,,
Orchideae.		
Vanilla planifolia Andr. (Vanilla).	2379. *Creatonotus transiens* Walk.	*2381. *Apanteles creatonoti* Vier
Musaceae.		
Musa sapientum L. (Banana). ...	3126. *Erionota thrax* L. ...	3139. Chalcidoid.
	3514. ,, (ova). ...	3523. ,,
Musa sp. ...	,, ...	*230. *Chalcis marginata* Cam.
	,, ...	364. *Xanthopimpla* sp.
	,, ...	*233. *Apanteles erionotae* Wilk.
	1517. ,, ...	2777. Hymenopteron.
	4862. ,, ...	4904. Braconid.
	4883. ,, ...	4905. Chalcidoid.

Food-plant.		Insect.		Enemy.
Bromeliaceae.				
Ananas sativus Schult. (Pineapple).	3446.	*Pseudococcus brevipes* Ckll.	3447.	*Scymnus* sp.
Palmaceae.				
Areca catechu L. (Areca Palm). ...	2330.	*Mahasena corbetti* Tams. ...	2352.	Tachinid.
	2330.	,, ...	2397.	,,
Cocos nucifera L. (Coconut). ...	5151.	*Aspidiotus destructor* Sign. ...	5152.	*Scymnus* sp.
	4599.	*Tirathaba rufivena* Walk. ...	4604.	*Apanteles tirathabae* Wilk.
		,, ...	396.	*Hemimaticera basifulva* Bezzi.
		,, ...	234.	*Nemeritis palmaris*. Wilk.
		,, ...	512.	,,
	4004.	,, ...	4048.	Chalcidoid.
		,, ...	*4101.	Ichneumonid.
		,, ...	*4102.	*Nemeritis palmaris*. Wilk.
		,, ...	4104.	Braconid.
		,, ...	*4105.	Ichneumonid.
	4086.	,, ...	*4204.	,,
		,, ...	4205.	Tachinid.
	4125.	,, ...	*4212.	Ichneumonid.
	4145.	,, ...	*4217.	*Nemeritis palmaris*. Wilk.
	4264.	,, ...	*4476.	,,

Food-plant.		Insect.		Enemy.
Cocos nucifera L.	4291.	*Tirathaba rufivena* Walk.	*4488.	*Nemeritis palmaris* Wilk.
	4430.	,,	*4524.	,,
	4552.	,,	4601.	Tachinid.
	4631.	,,	*4648.	Ichneumonid.
	3801.	*Hidari irava* Moore.	*3802.	Tachinid.
	1203.	,,	1204.	*Sarcophaga orientaloides* SW.
	956.	,,	*958.	Tachinid.
	956.	,,	973.	Dipteron.
	956.	,,	972.	Hymenopteron.
	3737.	,,	*3756.	Tachinid.
	3738.	,,	*3786.	,,
	4977.	*Mahasena corbetti* Tams.	*4978.	,,
		,,	*229.	*Tricholyga aberrans* Strobl.
	3040.	,,	3042.	Tachinid.
	1215.	*Gangara thyrsis* F.	1290.	,,
	4010.	*Decadarchis heterogramma* Mey-	4020.	Hymenopteron.
		Artona catoxantha Hamps.	*79.	*Ptychomyia remota* Ald.
	434.	,,	575.	*Tetrastichus* sp.
	191.	,,	192.	*Goryphus maculipennis* Cam.
				Apanteles artonae Roh.
		Setora nitens Walk.	*445.	*Chaetexorista javana* B.B.
	371.	,,	377.	*Spinaria* sp.
	3104.	,,	3105,3119,20.	Chalcidoid.
	3104.	,,	3109.	Braconid.
	4319.	,,	4320.	Chalcidoid.
	4865.	,,	*4936.	Tachinid.

Foodplant.	Insect.	Enemy.
Cocos nucifera L. ...	*Amathusia phidippus* L. ...	*393. *Sturmia inconspicua* Mg.
	,, ...	*603. *Tricholyga sorbillans* Wied.
	,, ...	*229. *Tricholyga aberrans* Strobl.
	3432. *Oregma nipae* de Goot. ...	3434. *Asarkina aegrota* F.
	3457. ,, ...	3547. *Chrysopa* sp.
	Plesispa reichei Chap. (ova)...	Chalcidoid.
	Hidari thrax Hüb. ...	1470. ,,
Elaeis guineensis Jacq.	2013. *Setora nitens* Walk. ...	2019. Hymenopteron.
(African oil palm).	2183,4. ,, ...	*2212,2185,2243. Tachinid.
Nipa fruticans Wurmb.	3075. *Parasa lepida* Cram. ...	3076. Braconid.
(Water palm).	3673. ,, ...	3689. Hymenopteron.
	3906. ,, ...	3991. Tachinid.
Gramineae.		
Bambusa sp. (Bamboo). ...	3906. *Parasa lepida* Cram. ...	3258. Hymenopteron.
Cynodon dactylon Pers.	2274. *Agrotis ypsilon* Hüb. ...	2316. *Sarcophaga* sp.
(Bermuda grass).		
Eleusine coracana Gaertn. (Ragi).	2379. *Creatonotus transiens* Walk.	*Apanteles creatonoti* Vier.
	3329. Aphid. ...	*Coccinella transversalis* F.
	,, ...	*Coccinella 8-maculata* F.
Oryza sativa L. (Rice). ...	3442. *Parnara bada* Moore. ...	*3445. Braconid.
	,, ...	3478. *Halidaya* sp.
	Chapra mathias F. ...	*154. *Halidaya luteicornis* Walk.

Food-plant.		Insect.		Enemy.
Oryza sativa L.		*Chapra mathias* F.	...	3429. *Halidaya* sp.
	2675.	,,	...	2677. Chalcidoid.
		,,	...	2698. Ichneumonid.
	3554.	,,	...	*3560. Braconid.
	4966.	,,	...	4969,4978A. Tachinid.
	5127.	,,	...	1525. Braconid.
				5159. *Halidaya* sp.
	5112.	,,	...	5156. Braconid.
	5126.	,,	...	5176. Tachinid.
	5184.	,,	...	5185,5199. Braconid.
				5200. *Halidaya* sp.
	5189.	,,	...	5217. Braconid.
	13.	*Spodoptera pecten* Gn.	...	17. *Cyphocera varia* F.
		Sesamia inferens Walk.	...	*32. *Winthemia semiberbis* Bezzi.
		,,	...	65. *Xanthopimpla* sp.
		,,	...	2125. Tachinid.
		Diatraea auricilia Dudg.	...	1032. ,,
	3421.	,,	...	3492,3,4. ,,
	5113.	,,	...	5117. Braconid.
	5119.	,,	...	5120. Chalcidoid.
		Monoctenocera brachiella Hamps.		688. *Phanerotoma* sp.
		Leptocorisa acuta Thünb. (egg).		960. Chalcidoid.
		Schoenobius incertellus Wlk. (egg).	...	5402. ,,

Food-plant.		Insect.		Enemy.
Oryza sativa L.	4884.	*Cnaphalocrocis medinalis* Guen.	4931.	Braconid.
	5130.	,,	5157.	,,
		,,	5165.	Ichneumonid.
		Spodoptera mauritia Boisd.	*2726.	*Cyphocera varia* F.
		,,	*2758.	Tachinid.
	3097.	,,	3108.	Ichneumonid.
	3096.	,,	3123.	Tachinid.
	4081.	,,	4124.	,,
	4933.	,,	4937.	,,
		Leptocorisa acuta Thunbg.	3051.	*Euagoras sordidatus* St.
	856.	*Scotinophara coarctata* F.	916.	*Pseudocyptera erythropa* Bezzi.
		Scotinophara coarctata F. (ova).	960.	Chalcidoid.
Saccharum officinarum L. (Sugar cane).	584.	*Topeutis rhodoproctalis* Hamps.	585.	*Apanteles* sp.
		,,	583.	*Elphea lutea* Cam?.
	2742.	*Oregma lanigera* Zehn.	2800.	*Asarkina aegrota* F.
		Monoctenocera brachiella Hamps.	688.	*Phanerotoma* sp.
Zea mays L. (Maize).	730.	*Aphis maidis* Fitch.	731.	Syrphid.
	1046.	*Hellula binotalis* Zell.	1062.	Hymenopteron.
Oryza sp. (Rice).	3466.	*Laphygma exempta* Walk.	3468.	*Sycanus leucomesus* Walk.

Food-plant.	Insect.	Enemy.
Grass.	... 1020. Sphingid.	... *1054. *Sturmia atropivora* R.D.
	4082. *Laelia suffusa* Walk.	... 4083. Braconid.
		4142. Ichneumonid.
Imperata arundinacea Cyr.	... 310. *Laphygma exempta*	3115. ,,

London Market Prices 1928.

The following quotations are intended to indicate the trend of prices during the period under review, viz., January to November, 1928. The list is based on various issues of the following journals and price lists published during the year 1928. Lewis & Peat Prices Current; Lewis and Peat, West Indian, Central American and Brazilian Monthly; Tropical Life; British Trade Journal; Fertilizers and Feeding Stuffs Journal; Chemist & Druggist; Chemical Trade Journal; Chemical Age; Perfumery & Essential Oil Record.

Oil Seeds.

	Highest. per ton. £ s. d.	Month.	Lowest. per ton. £. s. d.	Month.
Castor (Bombay)	18.15.0	January	17. 0.0	October
Copra (Ceylon)	29.15.0	February	26.17.0	Nov.
Copra (Straits)	28.13.9	,,	25.15.0	Sept.
Cotton Seed	12. 1.3	,,	9.12.6	October
	per cwt.		per cwt.	
Desiccated Coconut (fine)	1.19.0	September	1.17.0	Nov.
,, ,, (medium)	1.18.6	May	1.16.6	October
	per ton.		per ton.	
Ground nut (Hull)	21.11.3	February	20.15.0	Nov.
Linseed (Bombay)	18. 2.6	October	17. 3.9	January
Linseed (Plate)	16. 5.0	June	15. 5.0	March & Sept.
Palm Kernels (West African)	20.15.0	Apr.-May	20. 3.0	Sept.

Quotations for oil seeds were very much on a par with those of 1927, with the exception of Cotton Seed and Linseed (Bombay) which have ruled somewhat higher. The market for Palm Kernels has been steady, the price for the greater part of the year being in the region of £20-15-0.

Oils.

	Highest. per ton. £ s. d.	Month.	Lowest. per ton. £ s. d.	Month.
Castor (First pressing)	47. 5.0	February	44. 0.0	October
Coconut (Cochin)	60. 0.0	July-Nov.	55. 0.0	Feb-May.
Coconut (Ceylon)	44.10.0	January	42.15.0	Aug.-Sep
Cotton seed (Egyptian Crude)	37.10.0	January	30.10.0	November
Groundnut (Crude)	45. 0.0	January	39. 0.0	July-Nov.
Linseed	31.10.0	June	28. 0.0	March
	per cwt.		per cwt.	
Palm (Lagos)	2. 1.9	October	1.13.4	March
	per ton.		per ton.	
Palm Kernel	39.10.0	January	32.10.0	September

The price of Cotton seed oil (Egyptian Crude) which by December, 1927, had risen to £38-10-0, thereafter declined steadily until it reached the low level of £30-10-0 in November. Palm kernel oil was steady around £38, except in September when it dropped to £32-10-0, recovering to £37-5-0 in the following month, and to £37-10-0 in November.

There have been no violent fluctuations in the oil market, which fact undoubtedly reacts favourably on the two oil products in which Malaya is particularly interested—copra and palm oil.

Oil Cakes.

	Highest.	Month.	Lowest.	Month.
	per ton. £ s. d.		per ton. £. s. d.	
Cotton (Egyptian Seed) -	7. 8.9	October	8.12.6	May
Cotton (Bombay Seed) -	7.17.6	November	7. 5.0	March
Ground nut (London decorticated) -	12.15.0	January	11.15.0	October
Linseed (9%) -	11.17.6	January	12.17.6	November
Palm Kernel -	9.17.6	(Nominal)		

With the exception of cotton, prices of oil cakes have been generally in advance of those in the previous year. Linseed recorded a gradual improvement, with a sharp rise of ten shillings in November. There have been few quotations for palm kernel cake, values are nominal and ready buyers have to pay long prices.

Essential Oils.

Cajeput -	per lb.	2/6 January	3/2 November.
Camphor (Chinese Crude) -	,,	2/3	
Camphor (Japanese refined) -	,,	2/6 to 3/-	
Camphor oil (white distilled) -	per cwt.	50/- to 60/-	
Cinnamon (Ceylon leaf) -	per lb.	5/8 to 6/3	
Citronella (Ceylon) -	,,	1/4½ to 2/2	
Citronella (Java) -	,,	1/7 to 2/1	
Clove (90 to 92%) -	,,	4/3 to 8/9	
Lemon Grass (Cochin) -	,,	3/3 to 3/-	
Lime (West Indian distilled) -	,,	£1.5.0 to £1.10.0	
Patchouli (Penang) -	,,	£1.1.0 to £2.2.0	
Vetiver (Bourbon) -	,,	£1.1.0 to £1.2.0	

With the exception of Patchouli and Vetiver oils, all products in the above list have maintained prices, while many shew considerable advance over 1927 prices. Prices generally improved towards the end of the year under review.

Planters are often tempted to undertake the cultivation of essential oil crops on account of the spectacular advance in prices recorded on the European markets. Such enterprise should, however, be tempered with caution, as the market for many of these products is extremely limited and therefore readily flooded, a fact which is responsible for the violent fluctuations of prices.

Prices for 1928 call for little comment. Clove oil improved from an average price of 4/6 in January to 8/9 per lb. in November.

Spices.

	per cwt, £ s. d. £. s. d.
Capsicums (East Indian)	- 3. 0.0 to 2. 5.0 (September)
Capsicums (Nyassaland)	- 3.15.0 to 4. 5.0 (Jan. to July)
	3. 5.0 to 3.10.0 (September)
Chillies (Zanzibar)	- 7.10.0 to 8. 0.0 (Feb. to July)
	6.10.0 to 7.10.0 (September)
Chillies (Nyassaland)	- 8. 0.0 to 8.10.0 (Jan. to July)
	7. 0.0 to 8. 0.0 (September)
Chillies (Japan)	- 6.10.0
	per lb.
Cinnamon (Ceylon)	- 2/3
Cloves (Zanzibar)	- 7¼ to 11d.
Cloves (Penang)	- 1/8 to 1/10
	per cwt.
Ginger (Japan)	- £2.10.0 (Feb.-April) £2.15.0 (May-September)
Ginger (Jamaica)	- 2. 4.0 to 2. 5.0 (April)
	2.12.0 to 2.13.0 (September)
	per lb.
Mace (Bombay)	- 3/6 to 3/9
Nutmegs (S'pore & Penang) 110's	- 1/4
Nutmegs " " " 80's	- 1/8 to 1/6½
Nutmegs " " " 57's	- 2/5
	per lb.
Pepper Singapore (black)	- 1/6½ (April-May) 1/4 (Sept.)
Pepper Singapore (white)	- 2/3 (April-May) 1/11 (Feb.)

It will be remembered that chillies experienced a sensational rise in 1927 from £3 to £8. Prices have well main-

tained during 1928 at around the latter figure. Pepper prices too have remained at a satisfactory level, and these two crops are regarded as the most favourable of the above list suitable for cultivation in Malaya.

Drugs.

Chaulmoogra (Genuine)	-	per lb.	3/-
Ipecacuanha (Rio)	-	„	15/6 (February) 10/- (Nov.)

Natural Dyes and Extracts.

Gambier (cube) per cwt. £3

The prices of gambier has remained at a low level. The market for Malaya's product has been largely superseded by the estate product of the Dutch East Indies, where it is said to be prepared under more careful management than is usual amongst the Chinese cultivators of this country.

Fibres.

		per lb.	per lb.
Cotton (American G.O. to Mid.)	-	11.69 to 12.49 (July)	9.49—10.44 (Nov.)
Cotton (Egyptian Sakellarides G. F. to Fine)	-	20.40 to 24.20 (June)	16.55 to 19.45 (Feb.)
		per ton.	per ton.
Hemp (Manila "J" grade)		£41.10.0 (February)	£35 (Oct.-Nov.)
Hemp (Mauritius)		£35—£40 (Oct.-Nov.)	£32—£36 (January)
Hemp (New Zealand)		£32—£35 (Jan-Mar.)	£27—£32 (Oct-Nov.)
Hemp (Sisal)	-	£15—£40 (Jan.-May)	£20—£42 (Oct-Nov)
		per lb.	
Kapok (Indian)	-	10½d—(Jan.-Feb.)	7¼—7¾ (Oct.-Nov.)
Kapok (Java)	-	1/1¾—1/2¼ (Feb.Mar)	10¾—1/1½ (Oct.—Nov.)

Cottons shew a decided improvement over prices recorded in 1927. Of the hemps, Manila has dropped about £6 per ton, while Mauritius shews an improvement. Kapok prices are maintained.

Food Stuffs.

Arrowroot (Natal)	-	per lb.	8d. to 9d.
Cocoa (Ceylon Plantation)		per cwt.	£4.10.0 to £6. 0.0 (September)
			4. 2.0 to 4.11.0 (February)
Coffee (Malay Plantation)		„ „	5.10.0 to 6. 5.0
Coffee (Liberian)	-	„ „	4. 6.0 to 4.10.0
Sago (Pearl)	-	„ „	1. 8.0
Sago (flour)	-	„ „	17/6 to 18/-
Tapioca (Singapore flake)		„ lb.	2½d.
Tapioca (flour)	-	„ cwt.	14/- to 18/-
Tapioca (bullett)	-	„ „	£1.6.0

The prices of the above beverages and foodstuffs have remained remarkably steady throughout 1928, at prices which compare favourably with those of 1927. The prospect of the coffee market appears to justify fully the increased confidence of those Malayan planters who are turning their attention to this form of cultivation.

Chemicals.

	per ton.	
Acetic Acid (Glacial)	- £66	
Acetic Acid (80% con)	- £37	
Acetone	- £63—66 (Jan)	£74—£77.10.0 (Nov.)
Ammonia (880)	- £22 (Jan.-April)	21—21.15.0 (May-Nov.)
Calcium Acetate (Grey)	- £14—15	
Citric Acid per lb.	- 1/7 (January)	2/5—2/5½ (November)
Formic Acid ,, ton	- £45.10.0 (Jan.)	£46—46.12.6 (Nov.)
Formalin (40% Vol.)	- £38 (January)	£37 (November)
Lime Juice (Conc)	- £16.10.0. Nominal.	
Sodium Bisulphate (60-62%)	£17.10.0.	,,
Sodium Sulphate (Anhydrous)	- £14	
Sulphate of Ammonia	- £10.13.0 (Feb.-July)	£10—£10.5.0
Wood Creosote (unrefined) per gallon	1/9.	(Aug.-Nov.)

Acetone has advanced steadily during the year. Citric acid, which at the end of 1927 stood at 1/6, has now reached the level of 2/5½. Formalin shews a slight decline, as does also Sulphate of Ammonia. Quotations of other chemicals are approximately those of the previous year.

Received for publication 30th January, 1929

Abstract of Meteorological Readings in the various Districts of Malaya for the 1st Quarter 1928.

District.	Mean Barometrical Pressure at 32° Fah.	Maximum in Sun.	Temperature.				Hygrometer.				Prevailing Direction of Winds.	Total Rainfall.	Greatest Rainfall during 24 hours.
			Mean Dry Bulb.	Maximum.	Minimum.	Range.	Mean Wet Bulb.	Vapour Tension.	Dew Point.	Humidity.			
JANUARY—													
Kelantan, Kota Bahru	...	133.12	81.1	84.29	75.67	8.62	76.6	829	73.6	77	...	10.95	6.48
Johore, Johore Bahru	...	...	...	85.06	73.06	...	...	...	...	...	...	6.45	3.64
Malacca, Durian Daun	1010.7	116.	81	89	73	16	79	969	...	88	N.E.	5.16	1.20
Penang, George Town	1009.2	166.	81.7	95	71	24	78.7	32.0	76.7	87	N.W.	6.26	2.17
Kedah, Alor Star	...	...	...	...	...	...	...	...	...	...	...	2.06	0.82
Perlis, Kangar	...	...	83.2	91	71.7	...	76	763	71.18	67	...	1.98	0.82
FEBRUARY—													
Kelantan, Kota Bahru	...	132.50	81	85	75.51	9.48	76.4	820	73.3	77	...	18.59	4.60
Johore, Johore Bahru	...	...	...	86.58	73.24	...	...	...	...	...	...	4.76	1.14
Malacca, Durian Daun	1010.9	114.	81	88	73	15	78	962	...	89	N.E.	4.12	0.89
Penang, George Town	1009.1	168.	83.6	97.5	72	25.5	78.2	30.2	74.6	78.2	N.W.	0.39	0.24
Kedah, Alor Star	...	...	...	...	...	...	...	...	...	...	...	3.05	1.50
Perlis, Kangar	...	...	83.4	91.8	72.1	...	76	760	71.06	66.5	...	1.43	0.66
MARCH—													
Kelantan, Kota Bahru	...	140.	82.1	87.38	75.48	11.90	76.7	812	73	74	...	16.66	8.00
Johore, Johore Bahru	...	...	...	87.96	73.93	...	...	...	...	...	...	14.31	2.98
Malacca, Durian Daun	1010.9	117.	82	89	74	15	80	1001	...	88	N.E.	6.63	1.94
Penang, George Town	1009.0	166.	83	95	72	23	78.9	31.7	76.2	82.7	N.W.	4.96	2.64
Kedah, Alor Star	...	...	...	...	...	...	...	...	...	...	...	5.91	1.58
Perlis, Kangar	...	...	83.5	92.2	72.5	...	76.5	782	71.9	68.2	...	6.96	1.88

Abstract of Meteorological Readings in the various Districts of Malaya for the 2nd Quarter 1928.

District.	Mean Barometrical Pressure at 32° Fah.	Maximum in Sun.	Temperature.				Hygrometer.				Prevailing Direction of Winds.	Total Rainfall.	Greatest Rainfall during 24 hours.
			Mean Dry Bulb.	Maximum.	Minimum.	Range.	Mean Wet Bulb.	Vapour Tension.	Dew Point.	Humidity.			
APRIL—													
Kelantan, Kota Bahru -	...	139.23	83.4	86.9	77.1	9.8	78.6	880	75.4	77	...	5.26	1.75
Johore, Johore Bahru -	...	...	...	87.6	74.26	...	...	...	...	...	...	18.17	3.31
Malacca, Durian Daun -	1011	126	83	90	75	15	80	1014	...	88	N.E.	13.54	4.03
Penang, George Town -	1008.1	170	82.6	94	71	23	79.4	3.26	77.3	86.4	E.	11.77	4.14
Kedah, Alor Star -	...	...	...	...	...	...	...	...	...	...	...	12.87	2.10
Perlis, Kangar -	...	...	83.8	91.3	74	...	79.4	912	76.5	78.8	...	5.21	1.37
MAY—													
Kelantan, Kota Bahru -	...	140	80.9	91.8	76.12	15.67	78.2	906	76.3	86	...	3.57	2.15
Johore, Johore Bahru -	...	...	...	87.45	75.19	...	...	...	...	...	...	8.91	2.30
Malacca, Durian Daun -	1011.1	125	82	89	75	14	80	1026	...	90	N.E.	9.75	1.98
Penang, George Town -													
Kedah, Alor Star -	...	...	..	...	...	...	...	...	...	...	...	16.82	4.30
Perlis, Kangar -	...	...	83.1	88.9	74.5	...	78.9	899	76.08	79.5	...	12.87	3.25
JUNE—													
Kelantan, Kota Bahru -	...	138.65	84.3	93.96	75.26	18.7	77.3	785	72	66	...	3.57	1.80
Johore, Johore Bahru -	...	...	...	87.46	74.66	...	...	...	...	...	...	7.75	3.99
Malacca, Durian Daun -	1011.	125	82	89	74	15	79	990		89	N.E.	13.78	2.40
Penang, George Town	1007.6	162	84.2	94	70	24	78	29.7	75.9	75	S	1.65	0.94
Kedah, Alor Star -	...	...	...	...	...	...	...	...	...	...	...	5.59	2.02
Perlis, Kangar -	...	...	84.1	90	74.1	15.9	79.2	897	76	77.1	...	4.37	2.12

Abstract of Meteorological Readings in the various Districts of Malaya for the 3rd Quarter 1928.

District.	Mean Barometrical Pressure at 32° Fah.	Maximum in Sun.	Temperature.				Hygrometer.				Prevailing Direction of Winds.	Total Rainfall.	Greatest Rainfall during 24 hours.
			Mean Dry Bulb.	Maximum.	Minimum.	Range.	Mean Wet Bulb.	Vapour Tension.	Dew Point.	Humidity.			
JULY—													
Kelantan, Kota Bahru -	...	143.03	84.6	94.74	74.96	19.77	77.6	812	73	68	...	3.06	1.44
Johore, Johore Bahru -	...	...	...	86.09	75.09	...	...	...	...	...	...	7.99	2.17
Malacca, Durian Daun -	1011.	122	82	88	74	14	79	997	...	88	N.E	8.00	1.59
Penang, George Town -	1007.8	164	86	94	70	24	78.4	29.4	73.5	70	S	4.53	0.87
Kedah, Alor Star -	...	...	...	...	...	...	...	...	...	...	...	2.03	0.85
Perlis, Kangar -	...	...	84.4	90.6	73.8	16.8	78.8	871	75.1	73.8	...	3.29	1.07
AUGUST—													
Kelantan, Kota Bahru -	...	140.31	83	94.25	72.83	21.41	76.9	807	72.8	71	...	3.67	0.80
Johore, Johore Bahru -	...	...	...	85.83	73.38	...	...	...	...	...	...	13.24	2.95
Malacca, Durian Daun -	1011.1	123	82	88	74	14	79	987	...	89	N.E.	10.56	2.90
Penang, George Town -	1009.4	162	84	93.5	68	25.5	77.3	28.8	73	73	N.W.	7.48	1.38
Kedah, Alor Star -	...	...	...	...	...	...	...	...	...	...	...	11.11	2.46
Perlis, Kangar -	...	...	81.8	88.6	73.5	15.1	77.8	871	75.1	80.3	...	5.90	1.59
SEPTEMBER—													
Kelantan, Kota Bahru -	...	142.03	82.2	94.46	74.13	20.33	77	832	73.7	75	...	10.60	3.15
Johore, Johore Bahru -	...	...	...	88.3	73.86	...	...	...	...	...	...	3.94	1.22
Malacca, Durian Daun -	1011.1	121	82	88	74	14	79	994	...	88	N.E.	9.63	1.36
Penang, George Town -	998.4	156.4	82.9	94	69	25	77.2	28.2	73	77	N.W.	19.92	4.21
Kedah, Alor Star -	...	...	...	...	...	...	...	...	...	...	...	16.09	2.34
Perlis, Kangar -	...	...	81.1	87	73.3	13.7	78	895	75.93	84.4	...	12.64	2.10

Abstract of Meteorological Readings in the various Districts of Malaya for the 4th Quarter 1928.

District.	Mean Barometrical Pressure at 32° Fah.	Maximum in Sun.	Temperature.				Hygrometer.				Prevailing Direction of Winds.	Total Rainfall.	Greatest Rainfall during 24 hours.
			Mean Dry Bulb.	Maximum.	Minimum.	Range.	Mean Wet Bulb.	Vapour Tension.	Dew Point.	Humidity.			
OCTOBER—													
Kelantan, Kota Bahru	...	137.05	70.7	95.19	73.83	21.35	76.8	846	74.2	80	...	25.76	10.73
Johore, Johore Bahru	...	...	...	86.80	74.12	...	...	...	...	...	...	6.17	1.29
Malacca. Durian Daun	1011.1	123	82	89	74	15	79	997	...	87	N.E.	14.98	3.12
Penang, George Town													
Kedah, Alor Star	...	...	...	...	...	...	...	...	...	...	...	9.92	2.22
Perlis, Kangar	...	...	81.4	86.7	73.2	13.5	77.2	851	74.4	79.5	...	10.12	1.61
NOVEMBER—													
Kelantan, Kota Bahru	...	131.08	79.9	91.40	73.96	17.43	76.1	823	73.4	80	...	18.61	4.07
Johore, Johore Bahru	...	..	...	85.26	73.80	...	...	...	...	...	...	11.29	2.57
Malacca, Durian Daun	1011.1	119	82	89	74	15	79	993	...	87	N.E.	13.02	1.91
Penang, George Town													
Kedah, Alor Star	...	...	...	...	...	...	...	...	...	...	...	2.71	0.89
Perlis, Kangar	...	...	81.1	89.1	72.1	17	72.6	658	66.86	62.07	...	5.12	1.35
DECEMBER—													
Kelantan, Kota Bahru	...	134.14	78.8	89.83	73.61	16.22	75.1	796	72.4	80	...	27.64	5.84
Johore, Johore Bahru	...	...	...	86.45	73.25	...	...	...	...	...	...	8.78	1.18
Malacca, Durian Daun	1011.1	119	81	88	74	14	79	983	...	88	N.E.	14.11	3.40
Penang, George Town													
Kedah, Alor Star	...	...	...	...	...	...	...	...	...	...	...	4.07	1.20
Perlis, Kangar	...	...	80.6	87.3	71.8	15.5	75.9	804	72.7	77.09	...	2.47	0.81

STATION.	Temperature.	Relative Humidity. Percentage.			Rainfall.				Bright Sunshine.	
						Most in a day.				
	9 A.M.	9 A.M.	3 P.M.	9 P.M.	Total.	Amount.	Date.	No. of rainfall days.	Daily mean.	Total.
	F	%	%	%	Ins.	m.m.	m.m.		Hrs.	Hrs.
Perak—										
Taiping ...	80.4	82	72	93	14.59	370.5	79.0	28th	18	.. ..
Kuala Kangsar ...	78.4	85	59	94	4.11	104.5	25.0	6th	9	.. ..
Batu Gajah ...	78.8	83	60	92	8.19	207.9	46.0	22nd	14	.. ..
Gopeng ...	80.1	78	60	93	5.51	140.0	66.3	14th	14	.. ..
Ipoh ...	79.5	78	61	94	3.27	83.1	19.5	5th	15	.. ..
Kampar ...	78.1	87	64	91	11.21	284.7	64.0	28th	15	.. ..
Teluk Anson ...	78.9	85	80	92	3.85	98.0	39.0	5th	6	.. ..
Tapah ...	80.1	78	64	94	8.80	223.5	67.6	24th	13	.. ..
Parit Buntar ...	81.8	79	72	91	6.41	162.8	34.3	5th	6	.. ..
Bagan Serai ...	79.6	84	64	94	6.90	175.3	68.1	5th	12	.. ..
Selama ...	78.9	86	67	92	11.27	286.2	59.2	4th	14	.. ..
Lenggong ...	78.0	82	59	93	3.84	97.5	36.0	24th	7	.. ..
Tanjong Malim ...	79.6	82	64	93	4.52	114.8	38.6	28th	12	.. ...
Grik ...	76.6	85	66	78	0.37	9.5	5.2	29th	3	.. ..
Klian Intan ...	74.9	83	55	87	1.41	35.8	27.2	29th	5	.. ..
Kroh ...	75.7	83	57	94	1.32	33.5	10.5	2nd	8	.. ..
Tanjong Rambutan ...	80.2	94	58	84	3.40	86.3	24.0	26th	6	.. ...
Sitiawan ...	80.9	80	68	67	1.07	27.1	12.5	4th	8	.. ..
Selangor—										
Lake Gardens, Kuala Lumpur...	79.4	82	65	94	4.62	117.3	19.6	21st	18	5.93 183.95
Inst. for Med. Research, K.L....	80.1	78	62	91	5.00	127.0	29.0	21st	17	.. ..
Port Swettenham ...	..	..	..	..	7.64	194.1	35.6	22nd	13	6.17 191.35
Kajang ...	79.0	84	74	93	3.24	82.3	15.2	27th	13	... ..
Kuala Selangor ...	82.1	79	73	76	6.99	177.6	55.4	17th	14	.. ..
Serendah ...	81.2	78	68	94	7.68	195.1	48.3	5th	15	.. ..
Kuala Kubu ...	80.9	77	67	96	6.03	153.2	53.5	28th	10	.. ...
Telok Datoh ...	..	..	..	..	6.52	165.6	40.1	27th	16	.. ..
Negri Sembilan—										
Seremban ...	81.6	83	72	95	7.08	179.8	44.0	2nd	17	4.76 147.60
Kuala Pilah ...	..	..	..	..	2.76	70.1	25.9	23rd	11	.. ..
Tampin ...	80.7	78	63	93	3.73	94.7	29.2	22nd	8	.. ..
Port Dickson ...	81.6	83	80	95	5.31	134.9	43.2	2nd	12	.. ..
Jelebu ...	78.5	86	61	95	0.54	13.7	9.1	18th	3	.. ..
Pahang—										
Kuala Lipis ...	74.8	84	59	94	1.68	42.7	10.2	5th	10	.. ..
Raub ...	76.9	87	67	96	5.56	141.2	86.9	5th	12	.. ..
Bentong ...	77.1	87	62	95	3.85	97.8	31.3	4th	12	.. ..
Pekan ...	80.1	91	85	95	11.15	283.2	41.4	13th	16	5.49 170.15
Kuantan ...	79.5	81	74	86	12.25	311.2	91.5	11th	12	.. ..
Mentakab ...	77.9	87	63	94	3.89	98.7	31.8	5th	7	6.30 195.50
Hill Stations—										
Cameron's Highlands (Tanah Rata)	66.3	79	77	93	1.90	48.2	20.5	22nd	13	4.99 154.65
Cameron's Highlands (Rhodn. Hill)	65.9	80	81	..	2.03	51.7	24.7	22nd	13	5.39 167.10
Fraser's Hill ...	63.8	93	84	96	8.44	214.4	59.7	22nd	16	5.14 159.35
Maxwell's Hill ...	70.7	83	92	90	4.59	116.5	24.2	29th	12	.. ..

Negri Sembilan.

—	Total.		Most in a day.	Date.	Total.	Most in a day.	Date.	No. of rainfall days.
	Ins.	m.m.	m.m.		m.m.	m.m.		
Kuala Kurau ..	4.14	105.2	35.6	22nd	42.7	19.1	6th	13
The Cottage ..	5.38	136.7	28.5	29th				

Pahang.

—	Total.		Most in a day.	Date.	No. of rainfall days.
	Ins.	m.m.	m.m.		
Temerloh ..	8.17	207.5	39.0	10th	17
S. Lembing ..	24.98	634..5	134.1	13th	19
Rompin ..					

STATION.	Temperature.	Percentage.			Rainfall.				Bright Sunshine.	
					Total.		Most in a day.			
	9 A.M.	9 A.M.	3 P.M.	9 P.M.			Amount.	Date.	No. of rainfall days.	Daily mean.	Total.
	°	%	%	%	Ins.	m.m.	m.m.			Hrs.	Hrs.
Perak—											
Taiping											
Kuala Kangsar ...	80.4	85	71	92	5.67	144.0	30.5	14th	16	..	..
Batu Gajah ...	78.4	84	60	92	3.41	86.5	35.0	24th	9	..	..
Gopeng ...	78.9	83	62	90	5.05	128.4	49.0	3rd	8	..	..
Ipoh ...	80.6	77	68	93	6.65	168.9	70.1	7th	14	..	..
Kampar ...	79.5	78	57	90	2.24	56.8	34.1	17th	11	..	..
Teluk Anson ...	78.1	85	67	90	7.58	192.5	58.4	24th	14	..	..
Tapah ...	..	..	..	..	5.48	139.3	66.1	16th	12	..	..
Parit Buntar ...	78.9	79	63	94	7.79	197.9	66.1	24th	15	..	..
Bagan Serai ...	82.6	78	75	92	3.03	77.0	27.7	5th	8	..	..
Selama ...	79.9	84	64	91	2.13	54.1	12.9	17th	8	..	..
Lenggong ...	79.1	85	66	91	2.71	68.8	36.6	16th	8	..	..
Tanjong Malim ...	78.1	83	57	91	2.95	75.0	46.0	16th	5	..	..
Grik ...	78.7	84	67	93	6.96	176.8	36.3	5th	16	..	..
Klian Intan ...	76.9	86	66	75	3.41	86.6	37.4	21st	8	..	..
Kroh ...	75.5	85	62	88	6.18	157.0	42.0	24th	8	..	..
Tanjong Rambutan ...	76.3	80	57	90	4.45	113.0	57.0	24th	7	..	..
Sitiawan ...	80.6	89	55	89	3.20	81.4	24.8	28th	4	...	..
	80.8	80	71	97	8.15	216.9	57.0	13th	13	..	..
Selangor—											
Lake Gardens, Kuala Lumpur...	78.7	83	62	92	6.10	155.0	67.8	5th	17	5.42	157.25
Inst. for Med. Research, K.L....	79.1	80	60	91	4.47	113.5	40.9	5th	15	..	..
Port Swettenham ...	..	..	..	..	..	..	..	..	..	..	..
Kajang ...	78.5	85	64	92	5.71	145.0	33.5	6th	15	..	..
Kuala Selangor ...	80.6	81	81	80	3.05	77.5	28.5	13th	14	..	..
Serendah ...	83.0	72	63	94	8.51	216.1	84.6	6th	14	..	..
Kuala Kubu ...	79.5	81	70	97	5.20	132.1	79.0	24th	11	..	..
Telok Datoh ...	..	..	..	..	5.59	142.0	48.8	3rd	14	..	..
Negri Sembilan—											
Seremban ...	80.7	86	75	95	6.42	163.0	41.9	17th	18	4.52	131.15
Kuala Pilah ...	..	..	..	..	4.87	123.7	63.3	16th	14	..	..
Tampin ...	81.2	83	71	92	4.94	125.5	40.7	16th	8	..	..
Port Dickson ...	81.3	83	81	94	7.16	181.9	33.0	15th	7	..	...
Jelebu ...	77.8	88	62	97	1.20	130.5	8.9	4th	5	..	..
Pahang—											
Kuala Lipis ...	77.7	84	66	90	6.25	158.8	49.3	15th	12	..	..
Raub ...	76.4	88	68	95	4.28	108.7	35.6	15th	12	..	..
Bentong ...	76.3	88	63	94	3.28	83.3	20.8	15th	17	..	..
Pekan ...	80.7	89	86	95	50.92	1293.4	178.8	21st	18	4.82	140.05
Kuantan ...	77.9	86	77	89	49.46	1256.3	250.7	17th	18	..	..
Mentakab ...	78.0	84	65	93	6.66	169.2	64.0	17th	13	5.20	150.75
Hill Stations—											
Cameron's H'lands (Tanah Rata)	66.5	75	72	91	3.18	80.7	13.1	4th	16	4.54	131.75
Cameron's H'lands (Rhodn. Hill)	65.2	80	78	..	3.45	87.6	15.1	17th	16	4.93	142.85
Fraser's Hill ...	64.6	90	85	91	4.69	119.1	22.1	16th	16	4.96	143.85
Maxwell's Hill ...	70.1	86	89	91	3.61	91.8	41.0	14th	6	..	..

—	Total.		Most in a day.	Date.
	Ins.	m.m.	m.m.	
Kuala Kurau ..	2.54	64.5	22.9	18th
The Cottage ..	3.15	80.0	19.6	15th

Negri Sembilan.

—	Total.		Most in a day.	Date.	No. of rainfall days.
	ns.	m.m.	m.m.		
	95	125.7	28.5	6th	14

Pahang.

—	Total.		Most in a day.	Date.	No. of rainfall days.
	Ins.	m.m.	m.m.		
Temerloh ..					
S. Lembing.	35.64	905.3	122.4	15th	18
Rompin ..	56.04	1429.4	259.3	19th	18

STATION.	9 A.M.	Percentage. 9 A.M.	3 P.M.	9 P.M.	Rainfall. Total.		Most in a day. Amount.	Date.	No. of rainfall days.	Bright Sunshine. Daily mean.	Total.
	F o	%	%	%	Ins.	m.m.	m.m.			Hrs.	Hrs.
PERAK—											
Taiping ...	81.1	78	67	87	10.14	257.5	75.5	26th	13	..	..
Kuala Kangsar ...	78.6	83	59	93	12.94	328.6	138.8	26th	9	..	..
Batu Gajah ...	80.0	82	59	90	2.50	63.4	12.4	23rd	10	..	..
Gopeng ...	80.8	80	58	89	6.27	159.3	56.4	24th	13	..	..
Ipoh ...	80.4	76	55	86	2.96	75.1	21.5	22nd	11	..	..
Kampar ...	79.3	82	62	86	10.13	257.3	44.7	26th	12	..	..
Teluk Anson ...	79.9	83	80	73	5.69	144.5	62.0	18th	10	..	..
Tapah ...	80.2	78	60	92	9.70	246.4	84.9	26th	12	..	..
Parit Buntar ...	81.8	79	68	91	3.66	93.0	38.9	21st	8	..	..
Bagan Serai ...	80.4	79	62	91	6.36	161.6	71.1	30th	9	..	..
Selama ...	79.8	81	67	91	12.29	312.2	117.8	26th	14	..	..
Lenggong ...	78.5	83	57	88	4.94	125.5	32.0	24th	11	..	..
Tanjong Malim ...	80.1	80	61	93	5.38	136.7	43.2	29th	9	..	..
Grik ...	..	..	..	..	6.21	157.7	61.2	26th	12	..	..
Klian Intan ...	75.7	89	70	91	7.16	182.0	50.0	24th	11	..	..
Kroh ...	76.3	81	54	91	5.20	132.0	25.0	26th	14	..	..
Tanjong Rambutan ...	80.9	90	57	89	6.36	161.5	45.3	21st	8	...	..
Sitiawan ...	81.1	77	66	96	5.45	138.4	49.0	24th	10	..	..
SELANGOR—											
Lake Gardens, Kuala Lumpur...	80.5	79	58	87	8.26	209.8	45.6	20th	9	6.01	186.45
Inst. for Med. Research, K.L....	81.1	77	56	88	4.05	102.9	37.8	28th	8	..	..
Bukit Jeram ...	82.3	77	72	88	9.77	248.1	68.7	27th	13	6.44	199.55
Kajang ...	80.8	80	62	92	4.35	110.5	45.7	18th	7	..	..
Kuala Selangor ...	82.2	79	67	63	6.07	154.2	53.3	26th	10	..	..
Serendah ...	85.4	67	63	94	5.98	151.9	55.6	29th	9	..	..
Kuala Kubu ...	80.8	78	65	95	4.02	102.1	34.8	28th	8	..	..
Telok Datoh ...	..	..	..	..	8.94	227.1	105.9	18th	14	..	..
NEGRI SEMBILAN—											
Seremban ...	81.9	82	68	94	4.59	116.6	32.6	18th	14	5.94	184.15
Kuala Pilah ...	..	..	..	..	3.73	94.7	34.5	26th	9	..	..
Tampin ...	81.8	77	83	87	7.64	194.1	76.2	25th	8	..	..
Port Dickson ...	82.5	81	77	91	6.95	176.5	91.5	18th	6	..	...
Jelebu ...	78.7	84	62	93	3.05	77.5	33.0	18th	5	..	..
PAHANG—											
Kuala Lipis ...	78.1	85	60	92	2.41	61.2	20.3	21st	5	..	..
Raub ...	77.7	88	66	94	3.95	100.3	28.7	22nd	9	..	..
Bentong ...	77.9	84	59	92	4.67	118.6	30.5	18th	8	..	..
Pekan ...	81.3	89	86	95	20.28	515.1	208.3	19th	13	5.86	181.75
Kuantan ...	80.5	80	72	87	13.33	338.6	86.4	17th	11	..	..
Mentakab ...	78.5	86	63	91	5.61	142.6	44.6	6th	6	5.47	169.50
HILL STATIONS—											
Cameron's H'lands (Tanah Rata)	67.3	71	70	92	2.42	61.6	16.8	26th	15	5.43	168.35
Cameron's H'lands (Rhodn. Hill)	65.8	72	73	..	2.37	60.3	18.3	26th	14	5.77	178.95
Fraser's Hill ...	66.7	85	80	91	4.55	115.6	23.4	26th	15	5.22	161.95
Maxwell's Hill ...	70.3	82	90	90	7.44	189.1	70.6	26th	11	..	..

—	Total. Ins.	Total. m.m.	Most in a day. m.m.	Date.	gri Sembilan. otal. m.m.	Most in a day. m.m.	Date.	No. of rainfall days.
Kuala Kurau ..	3.66	93.0	31.0	30th	135.1	33.0	18th	11
The Cottage ..	5.40	137.2	56.4	26th				

—	Pahang. Total. Ins.	m.m.	Most in a day. m.m.	Date.	No. of rainfall days.
Temerloh ..					
S. Lembing.	19.10	485.1	119.6	20th	21
Rompin ..	16.29	413.8	85.3	18th	15

STATION.	re 9 A.M.	Percentage. 9 P.M.	9 A.M.	3 P.M.	9 P.M.	Rainfall. Total.	Most in a day. Amount.	Most in a day. Date.	No. of rainfall days.	Bright Sunshine. Daily mean.	Total.
	°	lb.	%	%	%	Ins.	m.m.	m.m.		Hrs.	Hrs.
PERAK—											
Taiping ...	81.4	9.3	83	73	91	18.33	465.5	61.5	12th	24	..	..
Kuala Kangsar ...	79.5	8.7	84	65	93	11.28	286.5	82.0	3rd	18	..	..
Batu Gajah ...	80.9	8.9	82	67	93	10.58	268.8	63.0	29th	20	..	..
Gopeng ...	81.1	8.6	79	66	92	16.53	419.9	90.9	6th	25	..	..
Ipoh ...	80.5	8.8	85	67	93	14.98	380.5	59.6	28th	26	..	..
Kampar ...	80.4	7.8	82	66	89	13.49	342.7	64.0	11th	20	..	..
Teluk Anson ...	81.8	8.7	79	77	90	10.15	257.9	55.0	30th	19	..	..
Tapah ...	81.6	9.0	80	69	94	10.23	259.8	33.5	30th	19	..	..
Parit Buntar ...	81.8	8.3	82	77	92	14.59	370.6	84.1	18th	21	..	..
Bagan Serai ...	81.2	8.1	85	73	94	11.17	283.7	56.4	18th	16	..	..
Selama ...	80.9	8.5	87	75	93	20.11	510.8	103.8	18th	24	..	..
Lenggong ...	79.4	6.6	85	66	91	6.06	154.0	30.0	18th	19	..	..
Tanjong Malim ...	80.2	7.0	82	67	92	6.97	177.1	27.2	5th	19	..	..
Grik ...	78.9	6.1	87	78	95	9.01	229.0	49.2	27th	16	..	..
Klian Intan ...	76.0	7.0	90	72	92	15.24	387.0	73.0	6th	18	..	..
Kroh ...	76.9	..	87	67	..	16.79	426.5	91.0	18, 28	21	..	..
Tanjong Rambutan ...	81.3	9.5	85	59	93	7.61	193.2	38.3	11th	9	..	..
Sitiawan ...	82.0	9.1	81	70	97	8.07	205.1	24.7	24th	18	..	..
SELANGOR—											
Rly. Hill, Kuala Lumpur ...	80.1	8.5	83	71	92	9.83	249.7	36.8	23rd	18	5.71	171.15
Inst. for Med. Research, K.L....	80.7	8.9	83	67	92	10.10	256.5	72.6	24th	20	..	..
Bukit Jeram ...	82.1	8.8	81	76	92	5.92	150.3	52.1	23rd	14	6.14	184.60
Kajang ...	81.5	8.9	83	72	94	14.93	379.2	94.5	3rd	16	...	..
Kuala Selangor ...	83.3	..	74	78	..	4.58	116.3	33.5	10th	14	..	..
Serendah ...	83.4	6.6	72	66	94	9.62	244.3	59.5	8th	12	..	..
Kuala Kubu ...	81.7	8.5	80	80	97	13.83	351.3	69.6	11th	21	..	..
Telok Datoh ...	..	..	..	..	..	10.46	265.7	51.6	3rd	20	..	..
NEGRI SEMBILAN—											
Seremban ...	82.5	8.9	81	72	94	13.09	332.4	93.0	8th	22	4.87	145.95
Kuala Pilah ...	..	..	..	..	..	10.65	270.5	83.8	10th	15	..	..
Tampin ...	82.9	7.7	77	62	89	5.80	147.3	59.5	15th	7	..	..
Port Dickson ...	82.6	1.8	86	85	94	9.76	247.9	60.2	15th	11	..	..
Jelebu ...	81.1	8.7	78	59	96	7.01	178.1	52.1	9th	12	..	..
PAHANG—											
Kuala Lipis ...	79.3	8.6	85	63	91	11.26	286.0	69.9	24th	15	..	..
Raub ...	79.4	8.3	87	69	94	3.84	97.5	17.8	30th	10	..	..
Bentong ...	80.1	8.9	83	68	95	6.04	153.4	47.0	25th	17	..	..
Pekan ...	83.0	0.3	87	88	95	8.78	223.0	33.0	5th	17	6.47	193.95
Kuantan ...	81.5	9.1	83	72	91	9.57	243.1	95.3	19th	14	..	..
Mentakab ...	80.6	7.5	84	70	89	1.55	39.3	22.0	19th	4	4.24	127.35
HILL STATIONS—											
Cameron's H'lands (Tanah Rata)	67.5	8.4	84	78	95	10.03	254.8	39.1	27th	25	4.25	127.55
Cameron's H'lands (Rhodn. Hill)	65.9	..	85	82	..	10.67	271.1	56.1	27th	24	4.64	139.25
Fraser's Hill ...	67.7	0.1	90	84	94	7.47	189.7	43.2	14th	23	4.73	141.65
Maxwell's Hill ...	70.6	9.4	87	91	89	19.89	505.1	75.5	11th	24	..	..

—	Total.		Most in a day.	Date.	Total.	Most in a day.	Date.	No. of rainfall days.
	Ins.	m.m.	m.m.		m.m.	m.m.		
Kuala Kurau ..	13.79	350.3	57.2	18th	320.3	88.1	8th	20
The Cottage ..	18.20	462.3	62.2	11th				

—	Total.		Most in a day.	Date.	No. of rainfall days.
	Ins.	m.m.	m.m.		
Temerloh ..	12.32	312.9	61.7	25th	27
S. Lembing ..	8.22	208.8	48.8	4th	14
Rompin ..					

STATION.	Mean Hour of Observation.	Relative Humidity. Percentage. 9 A.M.	3 P.M.	9 P.M.	Rainfall. Total.		Most in a day. Amount.	Date.	No. of rainfall days.	Bright Sunshine. Daily mean.	Total.
PERAK—		%	%	%	Ins.	m.m.	m.m.			Hrs.	Hrs.
Taiping ...	82	79	67	91	12.18	309.5	54.5	15th	16	..	..
Kuala Kangsar ...	80	83	61	92	4.90	124.5	32.5	31st	13	..	..
Batu Gajah ...	81	80	63	89	5.76	146.2	51.6	24th	9	..	..
Gopeng ...	82	77	61	90	6.60	167.7	40.4	1st	18	..	..
Ipoh ...	82	80	66	91	11.32	287.6	71.3	1st	16	..	..
Kampar ...	81	81	64	88	13.26	336.8	96.3	5th	17	..	..
Teluk Anson ...	81	79	72	91	4.51	114.5	62.0	1st	6	..	..
Tapah ...	82	80	64	94	11.28	285.3	79.0	5th	13	..	..
Parit Buntar ...	82	81	71	93	9.63	244.6	103.9	1st	11	..	..
Bagan Serai ...	81	88	69	90	4.69	119.1	41.4	31st	9	..	..
Selama ...	81	85	71	92	10.74	272.8	64.2	5th	17	..	..
Lenggong ...	79	85	61	89	8.92	226.5	54.0	2nd	12	..	..
Tanjong Malim ...	80	84	68	92	14.32	363.7	48.8	15th	19	..	..
Grik ...	79	87	66	93	7.60	193.1	51.2	5th	14	..	..
Klian Intan ...	76	88	70	91	7.28	185.0	55.0	1st	14	..	..
Kroh ...	78	85	70	89	7.92	200.5	37.5	24th	17	..	..
Tanjong Rambutan ...	82	81	55	91	5.57	141.5	24.4	18th	10	...	..
Sitiawan ...	82	83	71	97	5.74	145.7	67.5	6th	12	..	..
SELANGOR—											
Rly. Hill, Kuala Lumpur ..	81	82	70	92	3.22	81.9	28.3	5th	15	6.38	197.80
Inst. for Med. Research, K.L....	81	81	67	91	5.50	139.7	40.4	27th	19	..	..
Bukit Jeram ...	81	83	73	90	6.68	169.7	45.7	29th	15	7.06	218.90
Kajang ...	81	84	71	94	4.05	102.9	16.5	6th	12	..	..
Kuala Selangor ...	..	..	..	..	7.13	181.1	62.5	18th	12	..	..
Serendah ...	84	70	64	93	8.42	213.9	69.3	18th	9	..	..
Kuala Kubu ...	81	81	70	97	9.88	251.0	61.7	5th	17	..	..
Telok Datoh ...	..	..	..	..	3.17	80.5	22.1	14th	9	..	..
NEGRI SEMBILAN—											
Seremban ...	82	82	72	95	12.32	313.0	90.6	5th	19	5.34	165.45
Kuala Pilah ...	..	..	..	..	3.28	83.3	40.7	3rd	18	..	..
Tampin ...	83	76	74	95	11.84	300.7	47.5	18th	17	..	..
Port Dickson ...	82	85	83	93	5.57	141.5	24.9	12th	10	..	..
Jelebu ...	80	80	64	96	4.29	109.0	47.0	7th	5	..	..
PAHANG—											
Kuala Lipis ...	80	85	59	88	8.20	208.3	44.2	30th	12	..	..
Raub ...	79	85	72	95	6.56	166.6	42.2	20th	15	..	..
Bentong ...	80	84	69	95	8.90	226.1	61.2	1st	13	..	..
Pekan ...	83	85	84	95	5.31	134.9	35.1	1st	9	6.42	199.10
Kuantan ...	81	83	71	90	9.00	228.6	45.7	18th	13	..	..
Temerloh ...	..	..	..	..	..	..	..	..	..	..	..
HILL STATIONS—											
Cameron's H'lands (Tanah Rata)	68	82	82	96	11.41	289.7	53.0	1st	22	4.71	145.65
Cameron's H'lands (Bt. Mentigi.)	66	87	88	..	10.84	275.3	40.6	1st	23	4.79	148.65
Fraser's Hill ...	69	86	84	94	5.94	150.9	51.6	5th	23	5.14	159.30
Maxwell's Hill ...	71	90	93	92	19.37	491.9	87.3	16th	14	..	..

—	Total. Ins.	Total. m.m.	Most in a day. m.m.	Date.
Kuala Kurau ..	5.14	130.6	47.3	31st
The Cottage ..	13.56	344.4	102.6	16th

Negri Sembilan.

Total. m.m.	Most in a day. m.m.	Date.	No. of rainfall days.
201.7	64.0	6th	13

Pahang.

—	Total. Ins.	Total. m.m.	Most in a day. m.m.	Date.	No. of rainfall days.
Mentakab ..	4.41	112.0	46.0	30th	7
S. Lembing.	15.55	395.0	56.1	31st	23
Rompin ..	4.92	125.0	59.5	14th	9

STATION.	9 A.M.	Percentage. 9 A.M.	Percentage. 3 P.M.	Percentage. 9 P.M.	Rainfall. Total.		Rainfall. Most in a day. Amount.	Rainfall. Most in a day. Date.	Rainfall. No. of rainfall days.	Bright Sunshine. Daily mean.	Bright Sunshine. Total.
	°	%	%	%	Ins.	m.m.	m.m			Hrs.	Hrs.
Perak—											
Taiping ...	83.1	76	63	87	3.25	82.5	34.0	28th	6	..	..
Kuala Kangsar ...	81.2	81	60	90	1.15	29.3	10.0	18th	9	..	..
Batu Gajah ...	82.4	73	60	91	2.87	73.0	36.4	28th	7	..	..
Gopeng ...	83.1	73	56	88	3.00	76.2	67.6	29th	5	..	..
Ipoh ...	82.1	79	63	89	2.03	51.6	40.0	29th	9	..	..
Kampar ...	80.8	80	59	85	3.15	80.0	44.5	29th	6	..	..
Teluk Anson ...	81.3	81	70	93	3.52	89.5	35.0	28th	6	..	..
Tapah ...	82.4	78	59	94	5.02	127.5	80.0	29th	6	..	..
Parit Buntar ...	84.8	74	66	93	5.28	134.1	39.1	10th	7	..	..
Bagan Serai ...	82.1	81	65	91	2.40	61.0	31.5	29th	6	..	..
Selama ...	81.9	83	65	91	4.11	104.4	42.2	23rd	8	..	..
Lenggong ...	79.7	82	63	92	2.03	51.5	13.0	4.10	6	..	..
Tanjong Malim ...	80.6	81	63	91	4.96	126.0	41.9	3rd	8	..	...
Grik ...	78.0	88	75	93	3.48	88.5	22.2	28th	7	..	..
Klian Intan ..	76.3	89	66	91	4.29	109.0	51.0	2nd	7	..	..
Kroh ...	78.3	84	64	89	2.18	55.5	13.5	4th	8	..	..
Tanjong Rambutan ...	...	..	..	..	2.37	60.2	49.0	30th	3	..	...
Sitiawan ...	82.7	79	67	97	0.47	12.0	7.0	29th	3	..	..
Selangor—											
Rly. Hill, Kuala Lumpur ...	81.6	77	63	87	1.35	34.4	19.1	21st	8	7.17	213.50
Inst. for Med. Research, K.L....	81.7	77	60	89	1.34	34.0	14.7	7th	7	..	..
Bukit Jeram ...	82.6	77	70	86	1.52	38.5	20.8	7th	6	7.69	230.85
Kajang ...	81.9	78	71	94	0.17	4.3	3.8	23rd	2	...	..
Kuala Selangor ...	83.5	72	88	88	4.85	123.2	88.4	8th	6	..	..
Serendah ...	84.1	66	66	95	2.83	71.9	28.2	5th	6	..	..
Kuala Kubu ...	81.3	78	62	96	5.34	135.6	46.2	29th	7	..	..
Telok Datoh ...	..	..	..	..	4.16	105.7	36.6	2nd	9	..	..
Negri Sembilan—											
Seremban ...	82.2	81	67	94	2.58	65.6	24.5	21st	12	5.92	177.50
Kuala Pilah ...	..	..	..	..	1.23	31.3	8.1	2nd	11	..	..
Tampin ...	82.8	79	70	92	5.54	140.7	25.4	20th	8	..	..
Port Dickson ...	83.0	86	85	93	4.01	101.9	45.7	18th	6	..	..
Jelebu ...	80.2	81	59	94	0.90	22.9	16.5	28th	2	..	..
Pahang—											
Kuala Lipis ...	79.0	86	58	91	6.69	169.9	77.0	3rd	6	..	..
Raub ...	79.6	82	67	94	2.62	66.6	29.2	25th	7	..	..
Bentong ...	79.6	83	59	93	2.52	64.0	44.5	28th	5	..	..
Pekan ...	81.7	84	75	91	2.98	75.7	57.2	17th	4	6.87	206.05
Kuantan ...	81.9	79	70	88	2.02	51.3	47.8	16th	5	..	..
Temerloh ..	..	...	..	..	..	..	..	..	..	..	..
Hill Stations—											
Cameron's H'lands (Tanah Rata)	68.5	77	79	95	2.41	61.3	22.1	14th	4	5.67	169.95
Cameron's H'lands (Bt. Mentigi.)	66.2	80	82	..	2.17	55.2	21.3	14th	14	5.79	173.70
Fraser's Hill ...	69.1	80	78	92	2.59	65.8	25.4	2nd	8	6.87	206.05
Maxwell's Hill ...	71.7	83	91	88	2.95	75.0	27.3	22nd	5	..	..

—	Total.		Most in a day.	Date.	No. of rainfall days.
	Ins.	m.m.	m.m.		
Kuala Kurau ..	5.12	130.1	39.1	14th	8
The Cottage ..	1.99	50.6	16.5	10th	5

egri Sembilan.

Total.	Most in a day.	Date.	No. of rainfall days.
m.m.	m.m.		
90.7	36.1	19th	6

Pahang.

—	Total.		Most in a day.	Date.	No. of rainfall days.
	Ins.	m.m.	m.m.		
Mentakab ..	4.82	122.5	41.5	29th	9
S. Lembing ..	5.47	138.9	49.0	9th	15
Rompin ..	8.85	224.8	50.8	23rd	11

STATION.	9 A.M.	Percentage. 9 A.M.	3 P.M.	9 P.M.	Rainfall. Total.		Most in a day. Amount.	Date.	No. of rainfall days.	Bright Sunshine. Daily mean.	Total.
PERAK—	%	%	%	%	Ins.	m.m.	m.m.			Hrs.	Hrs.
Taiping ...	83.3	74	58	89	4.29	109.0	49.0	4th	11	..	..
Kuala Kangsar ...	79.6	82	69	94	6.61	168.0	32.5	12th	11	..	..
Batu Gajah ...	81.2	77	61	91	2.93	74.4	19.6	5th	10	..	...
Gopeng ...	82.0	75	60	90	5.21	132.3	29.5	31st	15	..	..
Ipoh ...	81.1	81	62	91	4.67	118.5	59.8	4th	13	..	..
Kampar ...	80.8	78	59	84	7.95	201.9	85.3	5th	12	..	..
Teluk Anson ...	80.5	80	67	92	3.69	93.7	36.0	2nd	11	..	..
Tapah ...	82.2	75	63	94	3.16	80.3	14.7	8th	11	..	..
Parit Buntar ...	84.2	71	66	92	4.12	104.7	25.1	28th	10	..	..
Bagan Serai ...	81.5	82	61	93	5·52	140.2	38.4	9th	10	..	..
Selama ...	81.3	83	69	92	5.75	146.0	30.2	5th	19	..	..
Lenggong ...	79.2	83	65	93	9.75	247.5	64.0	5th	14	..	..
Tanjong Malim ...	80.5	82	63	91	6.46	164.1	55.9	4th	9	..	..
Grik ...	77.2	88	69	93	6.21	157.7	67.4	8th	7	..	..
Klian Intan ...	76.8	91	63	92	7.95	202.0	71.0	9th	11	..	..
Kroh ...	77.7	86	68	89	3.09	78.5	27.0	4th	10	..	..
Tanjong Rambutan ...	80.7	84	58	92	7.55	191.7	72.3	4th	8	...	..
Sitiawan ...	82.1	81	67	98	6.40	162.5	90.5	12th	11	..	..
SELANGOR—											
Kuala Lumpur Rly. Hill ..	80.1	81	62	89	4.44	112.7	49.8	9th	11	6.80	210.70
Inst. for Med. Research, K.L....	80.5	79	59	90	5.17	131.3	45.2	9th	11	..	..
Bukit Jeram ...	82.2	77	65	84	2.85	72.4	25.0	9th	11	7.76	240.70
Kajang ...	80.4	82	72	95	9.83	249.7	54.4	10th	15	..	..
Kuala Selangor ...	84.1	69	78	86	1.33	33.8	5.6	4th	12	..	..
Serendah ...	79.5	84	62	94	7.89	200.4	53.3	2nd	11	..	..
Kuala Kubu ...	81.3	78	65	96	9.42	239.3	55.4	4th	15	..	..
Telok Datoh ...	..	..	..	..	3.56	90.4	24.4	12th	11	..	..
NEGRI SEMBILAN—											
Seremban ...	81.8	83	65	95	6.87	174.4	48.6	11th	18	6.74	209.00
Kuala Pilah ...	..	..	..	..	3.52	89.4	44.2	10th	9	..	..
Tampin ...	82.0	77	64	93	2.69	68.3	29.2	7th	5	..	..
Port Dickson ...	81.9	86	81	94	7.26	184.4	56.9	10th	11	..	...
Jelebu ...	78.5	87	59	95	4.39	111.5	59.7	11th	8	..	..
PAHANG—											
Kuala Lipis ...	79.0	86	57	89	5.13	130.3	40.4	12th	8	..	..
Raub ...	78.7	82	62	92	7.21	183.1	71.6	1st	10	..	..
Bentong ...	78.7	84	59	93	8.01	203.5	114.3	3rd	11	..	..
Pekan ...	81.4	84	73	93	2.32	58.9	28.2	1st	7	6.43	199.40
Kuantan ...	81.7	79	65	88	2.73	69.3	25.4	11th	5	..	..
Temerloh ...	...	..	..	...	..	.	..	..	..	..	..
HILL STATIONS—											
Cameron's H'lands (Tanah Rata)	67.3	79	76	92	6.83	173.4	47.2	30th	14	6.00	186.00
Cameron's H'lands (St. Mentigh.)	64.8	83	77	..	6.98	177.3	47.0	30th	13	6.34	196.50
Fraser's Hill ...	67.1	85	78	94	8.35	212.1	53.1	3rd	12	6.43	199.25
Maxwell's Hill ...	70.5	84	88	91	3.49	88.6	22.0	31st	6	..	..

—	Total. Ins.	Total. m.m.	Most in a day. m.m.	Date.	Negri Sembilan. Total. m.m.	Most in a day. m.m.	Date.	No. of rainfall days.
Kuala Kurau ..	6.10	154.9	43.4	2 29	299.7	117.4	4th	9
The Cottage ..	4 02	102.1	18.8	Sev				

—	Pahang. Total. Ins.	Total. m.m.	Most in a day. m.m.	Date.	No. of rainfall days.
Mentakab ..	6.84	173.8	74.5	1st	8
S. Lembing .	9.06	230.1	79.8	26th	9
Rompin ..	2.97	75.5	20.1	11th	10

STATION.	9 A.M.	Percentage. 9 A.M.	Percentage. 3 P.M.	Percentage. 9 P.M.	Rainfall. Total.		Most in a day. Amount.	Most in a day. Date.	No. of rainfall days.	Bright Sunshine. Daily mean.	Bright Sunshine. Total.
	° F	%	%	%	Ins.	m.m.	m.m.			Hrs.	Hrs.
Perak—											
Taiping ...	81.8	79	65	91	7.38	187.5	56.5	17th	16	..	..
Kuala Kangsar ...	78.7	84	70	94	1.82	46.2	16.5	21st	9	..	..
Batu Gajah ...	79.6	80	62	92	5.50	139.8	35.4	12th	10	..	..
Gopeng ...	80.8	77	64	93	10.07	255.8	71.1	20th	18	..	..
Ipoh ...	80.0	80	65	92	6.40	162.6	37.4	17th	19	..	..
Kampar ...	79.7	80	60	86	4.53	115.1	38.4	14th	12	..	..
Teluk Anson ...	80.4	78	68	92	1.67	42.5	15.5	14th	6	..	..
Tapah ...	81.2	75	63	94	5.17	131.3	35.8	20th	11	..	..
Parit Buntar ...	82.3	75	62	94	3.01	76.5	16.3	6th	11	..	..
Bagan Serai ...	81.2	81	65	93	3.53	89.7	34.3	27th	9	..	..
Selama ...	80.2	85	71	92	4.31	109.6	40.4	22nd	19	..	..
Lenggong ...	77.5	86	68	94	3.96	100.5	15.0	13th	16	..	..
Tanjong Malim ...	79.3	84	67	92	5.76	146.3	46.5	16th	12	..	..
Grik ...	76.3	89	77	88	9.59	243.7	66.2	11th	16	..	..
Klina Intan ..	75.1	89	68	92	4.96	126.0	26.0	15th	20	..	..
Kroh ...	78.2	84	65	94	4.59	116.5	20.5	22nd	12	..	..
Tanjong Rambutan ...	81.4	88	58	94	4.80	122.0	15.4	22nd	11	..	..
Sitiawan ...	81.3	78	70	97	3.75	95.2	28.4	29th	11	..	..
Selangor—											
Rly. Hill, Kuala Lumpur ...	79.4	80	65	89	4.19	106.5	30.3	31st	13	5.50	170.45
Inst. for Med. Research, K.L....	79.5	78	64	90	4.27	108.5	24.9	31st	12	..	..
Bukit Jeram ...	80.3	78	68	86	3.50	89.0	30.2	26th	14	6.20	192.15
Kajang ...	79.8	82	70	94	4.56	115.8	52.8	29th	13	...	..
Kuala Selangor ...	81.0	75	70	82	6.29	159.8	86.6	27th	9	..	..
Serendah ...	81.3	77	63	94	7.59	192.8	76.0	17th	7	..	..
Kuala Kubu ...	79.9	79	68	96	4.94	125.5	27.7	17th	13	..	..
Telok Datoh ...	..	..	..	..	12.86	326.7	107.2	29th	15	..	..
Negri Sembilan—											
Seremban ...	81.0	85	67	95	3.12	79.2	24.8	2nd	12	5.95	184.50
Kuala Pilah ...	..	..	..	..	2.37	60.2	18.8	28th	9	..	..
Tampin ...	80.3	80	76	94	6.66	169.2	39.4	17th	12	..	..
Port Dickson ...	80.7	82	79	92	6.76	171.7	40.7	12th	11	..	..
Jelebu ...	80.3	76	62	95	2.90	73.7	25.9	16th	10	..	..
Pahang—											
Kuala Lipis ...	76.9	88	60	91	5.61	142.5	56.4	8th	11	..	..
Raub ...	77.3	85	70	92	2.59	65.8	22.9	17th	9	..	..
Bentong ...	78.2	81	61	91	2.65	67.3	33.0	21st	7	..	..
Pekan ...	81.3	83	76	93	8.21	208.5	53.9	6th	10	6.59	204.35
Kuantan ...	80.7	78	70	89	5.16	131.1	37.6	24th	13	..	..
Temerloh ...	77.9	87	63	93	7.33	186.2	26.2	23rd	15	5.64	174.90
Hill Stations—											
Cameron's H'lands (Tanah Rata)	66.3	79	78	94	3.99	101.3	19.0	21st	23	5.00	155.05
Cameron's H'lands (Bt. Mentigi.)	64.4	83	82	..	3.97	100.9	15.5	21st	21	5.21	161.45
Fraser's Hill ...	67.2	81	77	87	1.73	43.9	11.2	20th	16	6.05	187.70
Maxwell's Hill ...	70.2	84	89	91	8.93	226.9	62.4	17th	13	..	..

—	Total. Ins.	Total. m.m.	Most in a day. m.m.	Date.
Kuala Kurau ..	4.74	120.4	42.2	27th
The Cottage ..	8.34	211.8	62.0	17th

egri Sembilan.

Total.		Most in a day.	Date.	No. of rainfall days.
s.	m.m.	m.m.		
57	220.2	81.5	31st	9

Pahang.

—	Total. Ins.	Total. m.m.	Most in a day. m.m.	Date.	No. of rainfall days.
Mentakab ..	4.77	121.2	48.3	8th	9
S. Lembing ..	7.33	186.2	47.5	30th	22
Rompin ..	4.07	103.4	29.2	26th	8

STATION.	9 A.M.	Percentage. 9 A.M.	3 P.M.	9 P.M.	Rainfall. Total. Ins.	m.m.	Most in a day. Amount. m.m.	Date.	No. of rainfall days.	Bright Sunshine. Daily mean. Hrs.	Total. Hrs.
PERAK—	F	%	%	%							
Taiping ...	81	77	66	90	5.49	139.5	37.5	28th	17	..	..
Kuala Kangsar ...	79	82	70	93	1.26	32.0	6.2	21st	10	..	..
Batu Gajah ...	80	79	65	91	7.46	189.4	55.4	18th	15	..	..
Gopeng ...	81	78	65	92	7.07	179.6	35.6	21st	18	..	..
Ipoh ...	80	79	65	91	3.21	81.6	29.2	18th	17	..	..
Kampar ...	80	80	61	87	8.62	218.9	72.4	10th	12	..	..
Teluk Anson ...	80	78	64	94	2.07	52.5	19.0	10th	7	..	..
Tapah ...	81	77	60	94	7.75	196.9	69.9	10th	16	..	..
Parit Buntar ...	82	77	69	96	13.19	335.0	87.9	10th	15	..	..
Bagan Serai ...	80	82	69	91	9.01	228.9	67.8	10th	12	..	..
Selama ...	80	82	72	91	6.98	177.3	29.4	10th	14	..	..
Lenggong ...	78	84	68	92	2.97	75.5	18.0	10th	10	..	..
Tanjong Malim ...	80	80	66	92	7.94	201.7	44.5	5th	15	..	..
Grik ...	76	88	77	90	7.19	182.5	49.5	18th	14	..	..
Klian Intan ...	75	89	69	92	7.28	185.0	37.0	8th	19	..	..
Kroh ...	78	83	69	90	6.26	159.0	49.0	8th	17	..	..
Tanjong Rambutan ...	..	..	..	..	6.37	161.8	27.6	18th	10	...	..
Sitiawan ...	82	76	71	97	5.24	133.1	43.9	18th	11	..	..
SELANGOR—											
Kuala Lumpur Rly. Hill ...	80	82	64	91	3.25	82.5	18.4	13th	13	6.31	189.25
Inst. for Med. Research, K.L....	80	80	61	91	4.55	115.6	19.6	27th	13	..	..
Bukit Jeram ...	82	78	68	85	5.63	142.9	39.0	20th	16	6.90	207.10
Kajang ...	80	83	69	94	5.67	144.0	42.4	8th	9	..	..
Kuala Selangor ...	81	77	72	79	7.69	195.3	68.6	21st	14	..	..
Serendah ...	82	73	72	95	13.23	336.1	71.9	8th	15	..	..
Kuala Kubu ...	81	77	69	96	5.80	157.3	36.1	1st	15	..	..
Telok Datoh ...	.	..	..	..	9.52	241.8	59.5	8th	18	..	..
NEGRI SEMBILAN—											
Seremban ...	80	83	66	94	6.03	153.2	35.6	14th	13	6.00	180.00
Kuala Pilah ...	.	..	..	..	2.08	52.8	20.1	15th	9	..	..
Tampin ...	81	83	68	93	6.64	168.7	40.7	16th	12	..	..
Port Dickson ...	80	88	80	93	16.40	416.6	53.9	30th	15	..	..
Jelebu ...	80	78	55	95	1.38	35.1	13.2	30th	8	..	..
PAHANG—											
Kuala Lipis ...	78	86	58	89	5.41	137.4	43.9	14th	12	..	..
Raub ...	79	82	66	93	2.00	50.8	11.2	12th	9	..	..
Bentong ...	79	79	56	93	1.78	45.2	19.1	14th	7	..	..
Pekan ...	82	83	74	92	5.36	136.1	50.8	14th	9	7.55	226.55
Kuantan ...	82	77	68	91	8.35	212.1	72.1	8th	15	..	..
Temerloh ...	79	84	62	91	7.47	189.7	33.8	30th	14	6.22	186.65
HILL STATIONS—											
Cameron's H'lands (Tanah Rata)	66	81	79	95	4.98	126.4	33.3	28th	21	4.82	144.50
Cameron's H'lands (Bt. Mentigi.)	64	86	81	..	5.37	136.3	38.7	28th	19	5.47	163.95
Fraser's Hill ...	67	83	76	90	4.51	114.6	27.2	11th	14	6.38	191.40
Maxwell's Hill ...	69	88	90	95	10.17	258.2	40.3	11th	11	..	..

Negri Sembilan. —	Total. Ins.	m.m.	Most in a day. m.m.	Date.	Total. Ins.	m.m.	Most in a day. m.m.	Date.	No. of rainfall days.
Kuala Kurau ..	12 32	312.9	60.2	10	53	64.3	15.5	15th	9
The Cottage ..	12.28	311.9	53.3	19					

Pahang. —	Total. Ins.	m.m.	Most in a day. m.m.	Date.	No. of rainfall days.
Mentakab ..	7.72	196.1	39.4	30th	12
S. Lembing.	6.67	169.4	70.6	23rd	15
Rompin ..	7.46	189.5	50.8	12th	13

STATION.	Mean Humidity at 9 A.M.	Percentage. 9 A.M.	3 P.M.	9 P.M.	Rainfall. Total. Ins.	m.m.	Most in a day. Amount. m.m.	Date.	No. of rainfall days.	Bright Sunshine. Daily mean. Hrs.	Total. Hrs.
Perak—											
Taiping ...	80	82	77	90	12.91	328.0	92.0	13th	24	..	..
Kuala Kangsar ...	78	86	79	89	12.09	307.2	70.2	31st	20	..	..
Batu Gajah ...	79	81	70	92	9.66	245.3	68.3	14th	17	..	..
Gopeng ...	80	80	72	95	10.70	271.8	45.7	30th	23	..	..
Ipoh ...	79	82	71	93	9.34	237.3	35.7	31st	23	..	..
Kampar ...	78	82	65	89	17.27	438.7	73.7	18th	25	..	..
Teluk Anson ...	78	86	70	93	10.61	269.5	91.0	21st	19	..	..
Tapah ...	80	78	68	95	15.24	387.1	87.4	28th	19	..	..
Parit Buntar ...	81	77	74	94	7.34	186.5	59.2	5th	19	..	..
Bagan Serai ...	79	84	87	94	6.67	169.4	42.4	26th	16	..	..
Selama ...	79	85	77	93	16.61	421.8	105.6	15th	20	..	..
Lenggong ...	78	86	67	93	8.37	212.5	45.0	25th	17	..	..
Tanjong Malim ...	79	84	68	92	16.69	423.9	120.4	15th	23	..	..
Grik ...	77	88	80	86	10.32	262.2	80.2	17th	19	..	..
Klian Intan ..	75	90	69	93	16.30	414.0	49.0	6th	25	..	..
Kroh ...	76	88	73	91	18.54	471.0	96.0	28th	22	..	..
Tanjong Rambutan ...		..	..	..	8.09	205.6	56.7	31st	10	..	..
Sitiawan ...	80	82	75	97	5.94	150.9	33.3	28th	18	..	..
Selangor—											
Kuala Lumpur Rly. Hill ...	79	84	75	95	13.69	347.7	67.2	15th	28	5.02	155.70
Inst. for Med. Research, K.L....	80	80	70	92	13.42	340.9	88.7	11th	29	..	..
Bukit Jeram ...	80	81	74	92	8.26	209.8	62.3	9th	22	5.54	171.75
Kajang ...	80	82	74	94	18.88	479.5	78.7	15th	25	...	..
Kuala Selangor ...	81	77	67	76	11.27	286.3	66.3	28th	17	..	..
Serendah ...	82	76	62	93	13.12	333.3	52.8	14th	22	..	..
Kuala Kubu ...	79	82	80	97	17.19	436.6	66.3	15th	25	..	..
Telok Datoh ...		..	..	..	14.03	356.4	121.7	13th	20	..	..
Negri Sembilan—											
Seremban ...	80	85	76	95	14.06	357.1	44.8	14th	22	4.72	146.35
Kuala Pilah ...		..	..	..	10.57	268.5	58.9	11th	22	..	..
Tampin ...	81	78	70	92	8.75	222.3	35.6	18th	11	..	..
Port Dickson ...	81	88	82	95	8.85	224.8	40.7	24th	12	..	..
Jelebu ...	79	81	62	95	10.95	278.1	38.6	15th	18	..	..
Pahang—											
Kuala Lipis ...	78	85	65	95	15.15	384.8	63.5	19th	21	..	..
Raub ...	78	85	76	96	16.47	418.3	129.5	29th	16	..	..
Bentong ...	78	84	69	95	11.19	284.2	53.9	30th	21	..	..
Pekan ...	80	86	81	93	13.12	333.3	61.7	17th	17	..	..
Kuantan ...	80	80	76	93	12.00	304.8	50.1	6th	20	..	..
Temerloh ..	77	89	69	95	7.56	192.0	74.7	16th	22	4.14	128.20
Hill Stations—											
Cameron's H'lands (Tanah Rata)	66	83	86	96	12.93	328.5	35.8	5th	25	2.76	85.65
Cameron's H'lands (Bt. Mentigi.)	64	87	90	..	13.14	333.7	36.6	5th	27	2.81	86.95
Fraser's Hill ...	67	87	87	95	8.66	220.0	44.5	14th	27	3.78	117.10
Maxwell's Hill ...	70	88	95	93	17.32	440.0	55.4	16th	20	..	..

—	Negri Sembilan. Total. Ins.	m.m.	Most in a day. m.m.	Date.	No. of rainfall days.	—	Pahang. Total. Ins.	m.m.	Most in a day. m.m.	Date.	No. of rainfall days.
Kuala Kurau ..	9.27	235.5	54.9	5th	21	Mentakab ..	9.13	231.9	68.6	17th	17
The Cottage ..	22 97	583.5	80.8	26th	273.1	S. Lembing ..	20.70	525.8	94.7	14th	26
			33.0	20th		Rompin ..	8.64	219.5	71.1	28th	22

STATION.	9 A.M.	Percentage. 9 A.M.	Percentage. 3 P.M.	Percentage. 9 P.M.	Rainfall. Total.		Most in a day. Amount.	Most in a day. Date.	No. of rainfall days.	Bright Sunshine. Daily mean.	Bright Sunshine. Total.
	F	%	%	%	Ins.	m.m.	m.m.			Hrs.	Hrs.
Perak—											
Taiping ...	80	82	76	91	26.28	667.5	58.5	11th	26	..	..
Kuala Kangsar ...	78	85	72	93	11.89	302.0	68.5	3rd	19	..	..
Batu Gajah ...	79	82	68	96	16.54	420.2	63.4	13th	23	..	..
Gopeng ...	80	80	73	95	10.79	274.1	36.1	3rd	19	..	..
Ipoh ...	79	83	70	95	14.79	375.7	75.0	7th	23	..	..
Kampar ...	79	84	65	91	12·42	315.8	56.1	8th	18	..	..
Teluk Anson ...	79	86	83	94	11.59	294.3	50.0	15th	15	..	..
Tapah ...	81	78	74	95	11.70	297.2	47.0	6th	22	..	..
Parit Buntar ...	82	81	77	94	16.72	424.7	53.6	7th	25	..	..
Bagan Serai ...	79	84	74	93	22.56	573.0	86.9	5th	22	..	..
Selama ...	80	85	73	93	20.85	529.6	92.4	5th	18	..	..
Lenggong ...	78	83	69	93	11.00	279.5	94.0	6th	12	..	..
Tanjong Malim ...	79	84	70	93	16.06	407.9	72.4	3rd	24	..	..
Grik ...	76	88	71	86	5.47	138.8	28.9	12th	10	..	..
Klian Intan ...	76	87	69	93	5.28	134.0	32.0	11th	11	..	..
Kroh ...	76	86	74	94	9.05	230.0	58.5	27th	12	..	..
Tanjong Rambutan ...	81	87	60	92	9.67	245.5	43.7	7th	11	..	..
Sitiawan ...	81	83	78	97	14.56	369.8	90.0	13th	20	..	..
Selangor—											
Kuala Lumpur Rly. Hill ...	79	84	79	96	11.08	281.5	29.7	20th	26	4.36	130.75
K.L. Inst. for Med. Research ...	80	80	77	93	13.91	353.3	62.7	19th	22	..	..
Bukit Jeram ...	80	83	75	94	17.45	443.3	75.7	4th	23	5.45	163.40
Kajang ...	80	86	79	95	15.70	398.8	78.7	10th	24	..	..
Kuala Selangor ...	82	78	58	69	14.67	372.6	68.9	5th	24	..	..
Serendah ...	81	78	59	95	14.88	378.0	94.0	14th	16	..	..
Kuala Kubu ...	80	80	79	97	8.96	227.6	43.2	11th	21	..	..
Telok Datoh ...	.	..	..	..	14.28	362.7	41.9	12th	23	..	..
Negri Sembilan—											
Seremban ...	80	85	72	95	15.81	401.6	94.4	1st	25	4.19	125.50
Kuala Pilah ...	.	..	..	..	7.10	180.3	72.1	28th	28	..	..
Tampin ...	81	81	81	94	5.12	130.1	31.3	29th	12	..	..
Port Dickson ...	81	88	89	95	22.16	562.9	128.3	12th	17	..	..
Jelebu ...	79	82	63	96	9.18	233.2	54.6	12th	18	..	..
Pahang—											
Kuala Lipis ...	78	84	64	95	8.91	226.3	40.7	30th	20	..	..
Raub ...	78	84	75	95	6.95	176.5	36.6	7th	17	..	..
Bentong ...	78	84	70	96	14.78	375.4	67.6	11th	20	..	..
Pekan ...	80	87	84	94	12.70	322.6	62.7	20th	15	..	..
Kuantan ...	79	82	78	93	10.07	255.8	36.8	20th	22	..	..
Temerloh ...	77	87	70	95	9.86	250.4	45.0	26th	23	4.28	128.40
Hill Stations—											
Cameron's H'lands (Tanah Rata)	67	86	83	94	9.14	232.2	34.5	3rd	26	3.29	98.60
Cameron's H'lands (Bt. Mentigi.)	65	85	88	..	8.77	222.8	26.7	4th	25	3.45	103.45
Fraser's Hill ...	65	92	89	96	14.77	375.2	59.5	5th	25	3.54	106.20
Maxwell's Hill ...	70	91	94	95	22.61	573.3	126.0	14th	16	..	..

—	Negri Sembilan. Total. Ins.	Total. m.m.	Most in a day. m.m.	Date.	Total. m.m.	Most in a day. m.m.	Date.	No. of rainfall days.
Kuala Kurau ..	13.08	350.5	70.6	25th	194.6	41.2	11th	16
The Cottage ..	19.07	484.4	56.4	28th				

—	Pahang. Total. Ins.	Total. m.m.	Most in a day. m.m.	Date.	No. of rainfall days.
Mentakab ..	8.12	206.3	45.2	27th	10
S. Lembing.	140.07	357.4	100.9	27th	28
Rompin ..	11.55	293.4	59.7	19th	21

STATION.	Mean of 9 A.M. and 9 P.M.	Percentage. 9 A.M.	Percentage. 3 P.M.	Percentage. 9 P.M.	Rainfall. Total.	Rainfall. Most in a day. Amount.	Rainfall. Most in a day. Date.	Rainfall. No. of rainfall days.	Bright Sunshine. Daily mean.	Bright Sunshine. Total.
	° F	%	%	%	Ins.	m.m.	m.m.		Hrs.	Hrs.
PERAK—										
Taiping ...	78.4	84	79	91	15.16	385.0	61.5	18th	24	.. ..
Kuala Kangsar ...	77.8	86	71	93	5.87	149.2	30.5	11th	18	.. ..
Batu Gajah ...	77.4	84	74	94	12.65	321.2	48.8	26th	19	.. ..
Gopeng ...	79.3	83	75	95	16.71	424.4	88.9	13th	21	.. ..
Ipoh ...	78.6	86	73	94	12.09	307.2	75.1	18th	21	.. ..
Kampar ...	77.2	85	68	91	20.17	512.3	74.9	13th	18	.. ..
Teluk Anson ...	77.7	90	74	93	9.51	241.5	59.5	16th	16	.. ..
Tapah ...	79.7	83	74	94	15.16	385.1	114.8	11th	19	.. ..
Parit Buntar ...	79.5	83	76	95	11.19	284.2	48.3	18th	23	.. ..
Bagan Serai ...	78.2	88	74	96	9.82	249.4	40.7	12th	18	.. ..
Selama ...	78.7	87	75	92	9.95	252.8	52.8	2nd	19	.. ..
Lenggong ...	77.1	88	72	93	9.86	250.5	48.0	11th	15	.. ..
Tanjong Malim ...	78.9	84	69	93	10.49	266.5	42.9	26th	20	.. ..
Grik ...	76.7	87	65	86	11.37	288.9	76.4	21st	15	.. ..
Klina Intan ..	75.3	88	71	93	9.67	245.6	105.2	21st	16	.. ..
Kroh ...	76.1	88	77	92	8.33	211.5	82.0	21st	13	.. ..
Tanjong Rambutan ...	77.2	81	65	95	10.52	267.2	46.4	13th	19	.. ..
Sitiawan ...	80.1	82	79	97	8.49	215.7	52.5	13th	15	.. ..
SELANGOR—										
Kuala Lumpur Rly. Hill ...	78.9	85	69	94	6.40	162.5	40.0	18th	20	4.26 131.95
K.L. Inst. for Med. Research ...	79.2	82	70	93	8.06	204.7	51.3	17th	17	.. ..
Bukit Jeram ...	79.8	84	75	93	8.19	208.1	58.8	25th	19	5.16 160.10
Kajang ...	79.8	87	69	94	11.19	284.2	61.0	31st	24	.. ..
Kuala Selangor ...	82.5	73	64	84	7.09	180.1	59.7	13th	14	.. ..
Serendah ...	79.2	81	69	94	12.04	305.8	58.4	26th	20	.. ..
Kuala Kubu ...	79.4	82	67	95	8.26	209.8	35.1	26th	16	.. ..
Telok Datoh ...	..	..	..	..	10.97	278.6	63.8	26th	22	.. ..
NEGRI SEMBILAN—										
Seremban ...	80.9	86	66	95	8.81	223.7	47.7	22nd	23	3.66 113.60
Kuala Pilah ...	..	..	..	..	11.00	279.4	48.3	25th	20	.. ..
Tampin ...	80.6	78	69	92	13.35	339.1	55.9	21st	17	.. ..
Port Dickson ...	80.1	88	75	95	7.81	198.4	87.6	26th	11	.. ..
Jelebu ...	78.5	85	64	93	8.63	219.2	45.0	2nd	18	.. ..
PAHANG—										
Kuala Lipis ...	76.0	87	75	91	22.49	571.2	99.6	11th	22	.. ..
Raub ...	76.3	88	76	95	7.50	190.5	27.9	2nd	17	.. ..
Bentong ...	76.9	87	73	96	12.97	329.5	70.1	13th	23	.. ..
Pekan ...	78.2	89	85	94	42.26	1073.4	221.0	23rd	20	.. ..
Kuantan ...	77.2	86	78	92	43.94	1116.1	279.4	22nd	21	.. ..
Temerloh ..	76.4	89	73	94	15.51	394.0	73.4	25th	20	3.96 122.85
HILL STATIONS—										
Cameron's H'lands (Tanah Rata)	65.3	88	84	95	14.17	359.8	89.9	10th	28	2.26 70.15
Cameron's H'lands (Bt. Mentigi.)	63.7	89	89	..	13.93	351.4	85.8	10th	25	2.41 74.60
Fraser's Hill ...	64.4	96	94	98	11.75	298.5	40.4	12th	28	2.05 63.40
Maxwell's Hill ...	69.49	84	91	86	17.09	434.1	76.4	18th	26	.. ..

—	Negri Sembilan. Total.		Most in a day.	Date.	Pahang. Total.		Most in a day.	Date.	No. of rainfall days.
	Ins.	m.m.	m.m.		Ins.	m.m.	m.m.		
Kuala Kurau ..	11.17	283.7	119.1	2nd	20 335.3		95.5	21st	15
The Cottage ..	12.38	314.5	44.7	11th					
Mentakab ..					20.33	516.4	97.8	22nd	13
S. Lembing ..					44.08	1,119.6	160.3	22nd	28
Rompin ..					58.54	1,486.9	381.5	22nd	16